

Solomon, Terrance

From: Unknown@Unknown.com
Sent: Tuesday, June 01, 2004 1:44 PM
To: STIC-EIC3700
Subject: Generic form response

ResponseHeader=Commercial Database Search Request

AccessDB#= 123419

LogNumber=

Searcher= Jamie Kerrigan

SearcherPhone= 305-5934

SearcherBranch= EIC 3700

MyDate=Tue Jun 1 13:44:11 EDT 2004

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Phone=703-306-5444

Artunit=3743

Office=CPK1-11C57

Serialnum=09/813548

PatClass=128/201.25,205.27,205.29,206.11206.12,206.16,206.17,206.18,206.19; 96/69;
55/524,528,Dig.39

Earliest=03/21/01

Format1=paper

Searchtopic=An electret filter ~~media~~ comprising a fibrous web having a substantially continuous uniform thickness polymer coating that is a vapor deposition formed condensed liquid monomer polymerized onto fibers that form the fibrous web.

an electret filter is one that is charged

key words: filter, electret, fiber/fibrous, polymer, coat/coated/coating, vapor deposited/deposition, monomer

Comments=The best way/time to reach me is via email. Thank you.

send=SEND

File 350:Derwent WPIX 1963-2004/UD,UM &UP=200434
File 347:JAPIO Nov 1976-2004/Jan(Updated 040506)
File 371:French Patents 1961-2002/BOPI 200209
File 348:EUROPEAN PATENTS 1978-2004/May W04
File 349:PCT FULLTEXT 1979-2002/UB=20040527,UT=20040520

Set	Items	Description
S1	10	AU='GAHAN R' OR AU='GAHAN R E' OR AU='GAHAN RICHARD' OR AU='GAHAN RICHARD E'
S2	401	AU='CHOI W' OR AU='CHOI W M' OR AU='CHOI WAI MING' OR AU='CHOI WAIN MING'
S3	3	S1 AND S2
S4	490	ELECTRET() FILTER? ?
S5	4	(S1:S2 AND S4) NOT S3

3/7/1 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
014997838 **Image available**
WPI Acc No: 2003-058353/200305

Electret filter medium, e.g. for respirator, comprises meltblown polymer fiber web with polymer coating

Patent Assignee: HOLLINGSWORTH & VOSE CO (HOVO); CHOI W M (CHOI-I); GAHAN R E (GAHA-I)

Inventor: CHOI W M ; GAHAN R E

Number of Countries: 101 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200276576	A2	20021003	WO 2002US4944	A	20020220	200305 B
US 20020174869	A1	20021128	US 2001813548	A	20010321	200305
EP 1372814	A2	20040102	EP 2002753757	A	20020220	200409
			WO 2002US4944	A	20020220	
AU 2002306536	A1	20021008	AU 2002306536	A	20020220	200432

Priority Applications (No Type Date): US 2001813548 A 20010321

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 200276576	A2 E	34	B01D-039/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

US 20020174869 A1 A62B-007/10

EP 1372814 A2 E B01D-039/16 Based on patent WO 200276576

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR

AU 2002306536 A1 B01D-039/00 Based on patent WO 200276576

Abstract (Basic): WO 200276576 A2

NOVELTY - An electret filter medium comprises a meltblown polymer fiber web, and a polymer coating vapor phase deposited on surface(s) of the web.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a method for manufacturing an electret filter medium, by vaporizing and condensing a polymer coating on a fiber web; exposing the coating to energy to cause the coating to polymerize; and treating the coated

fiber web to form permanent charge pairs of dipoles in the fiber web.

USE - E.g. for a respirator (claimed).

ADVANTAGE - The inventive filter medium has a filter efficiency and degradation value of at least P 95, with enhanced charge stability. It meets the National Institute of Safety and Health standards for class P 99, preferably P 100, non-woven filter media. It retains particles and/or oil without reduction in filtration performance, even after prolonged filtration challenges.

DESCRIPTION OF DRAWING(S) - The figure is a flow chart illustrating a process for manufacturing the above electret filter medium.

pp; 34 DwgNo 1/2

Derwent Class: A14; A88; F06; J01

International Patent Class (Main): A62B-007/10; B01D-039/00; B01D-039/16

International Patent Class (Additional): A62B-018/08; A62B-023/02

5/7/1 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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013742190 **Image available**

WPI Acc No: 2001-226420/200123

Filter media for use in industrial face masks or respirators, room air cleaners and vacuum filters, comprises melt blown oleophobic plasma treated electret polymer fiber web

Patent Assignee: HOLLINGSWORTH & VOSE CO (HOVO)

Inventor: GAHAN R E

Number of Countries: 095 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200107144	A1	20010201	WO 2000US19279	A	20000714	200123 B
AU 200061006	A	20010213	AU 200061006	A	20000714	200128
EP 1202789	A2	20020508	EP 2000947386	A	20000714	200238
			WO 2000US19279	A	20000714	
JP 2003505229	W	20030212	WO 2000US19279	A	20000714	200321
			JP 2001512017	A	20000714	

Priority Applications (No Type Date): US 99359348 A 19990721

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200107144 A1 E 31 B01D-039/16

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT
RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200061006 A B01D-039/16 Based on patent WO 200107144

EP 1202789 A2 E B01D-039/16 Based on patent WO 200107144

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

JP 2003505229 W 46 B01D-039/14 Based on patent WO 200107144

Abstract (Basic): WO 200107144 A2

NOVELTY - The filter media comprises melt blown oleophobic plasma treated electret polymer fiber web.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) a respirator having a filter element which comprises annealed melt blown oleophobic plasma treated electret polymer fiber web;

(ii) manufacture of melt blown oleophobic plasma treated electret polymer fiber web involving treating melt blown polymer fiber web with oleophobic plasma followed by treating plasma treated web to form permanent charge pairs or dipoles in the melt blown polymer fiber web; and

(iii) manufacture of **electret filter** media having charge stabilizing fatty acid amide, involving treating melt blown polymer fiber web having charge stabilizing fatty acid amide (incorporated within the fibers) with oleophobic plasma followed by treating the plasma treated web to form permanent charge pairs or dipoles in the melt blown polymer fiber web.

USE - For use in industrial face masks or respirators, indoor air quality filters, surgical masks, room air cleaners, cabin air filters, vacuum filters, HVAC filters, HEPA filters, ASHRAE filters and ULPA filters.

ADVANTAGE - **Electret filter** media with improved filtration performance and enhanced charge stability of electret polymer web, is provided. The filter media meets the NIOSH standard for class P 95, class P 99 and class P 100 non-woven filter media.

DESCRIPTION OF DRAWING(S) - The figure shows the flowchart for manufacturing plasma treated **electret filter** media.

pp; 31 DwgNo 1/1

Derwent Class: A14; A17; A32; A88; F04; J01; P35

International Patent Class (Main): B01D-039/14; B01D-039/16

International Patent Class (Additional): A62B-018/08; B01D-039/00;
D06M-010/02

5/3,AB/4 (Item 2 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00344270

CHARGE STABILIZED ELECTRET FILTER MEDIA

MATERIAU FILTRANT A BASE D'ELECTRETS A STABILISATION DE CHARGE

Patent Applicant/Assignee:

HOLLINGSWORTH & VOSE COMPANY,

Inventor(s):

LIFSHUTZ Norman,

GAHAN Richard E,

STEVENS Graham C

Patent and Priority Information (Country, Number, Date):

Patent: WO 9626783 A1 19960906

Application: WO 96US1555 19960208 (PCT/WO US9601555)

Priority Application: US 95395661 19950228

Designated States: AU CA JP KR AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT
SE

Publication Language: English

Fulltext Word Count: 7579

English Abstract

An **electret filter** media includes an additive or mixtures thereof that enhance the charge stability of the media. The filter media achieves acceptable alpha values for a range of filtration challenges without significant decay in alpha values over time. Preferred charge additives include fatty acid amides, oleophobic fluorochemical surfactants, and mixtures thereof.

File 155:MEDLINE(R) 1966-2004/May W5
File 5:Biosis Previews(R) 1969-2004/May W5
File 73:EMBASE 1974-2004/May W5
File 34:SciSearch(R) Cited Ref Sci 1990-2004/May W4
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
File 323:RAPRA Rubber & Plastics 1972-2004/Jun

Set	Items	Description
S1	3	AU='GAHAN R E' OR AU='GAHAN RE'
S2	457	AU='CHOI W' OR AU='CHOI W M' OR AU='CHOI W.' OR AU='CHOI W- -M.' OR AU='CHOI W.M.'
S3	7	AU='CHOI W-M'
S4	44	AU='CHOI WM'
S5	59	ELECTRET() FILTER? ?
S6	0	S1:S4 AND S5
S7	243547	FILTER? ? OR MICROFIBR? OR MICROFIBER?
S8	7	S2:S4 AND S7
S9	5	RD (unique items)

1/6/1 (Item 1 from file: 434)
05101802 Genuine Article#: QP135 Number of References: 17
Title: STUDIES ON WHITENING PHENOMENA INDUCED BY SOME NON-SOLVENTS ON
HIGHLY ORIENTED GLASSY-POLYMERS

1/6/3 (Item 2 from file: 323)
00164606
TITLE: EFFECT OF MOLECULAR ORIENTATION ON POLYMER-LIQUID INTERACTION:
WHITENING

9/6/1 (Item 1 from file: 5)
0013817267 BIOSIS NO.: 200200410778
Mapping chromosome 7 specific ESTs of Magnaporthe grisea
2002

9/6/2 (Item 2 from file: 5)
0007222118 BIOSIS NO.: 199090006597
ISOLATION OF COMPLEMENTARY DNA CLONE FOR PROTEIN CARBOXYMETHYLTRANSFERASE
PCM
1989

9/6/4 (Item 2 from file: 73)
01054231 EMBASE No: 1978182594
Electron microscopic study on the development and functional morphology
of the ovarian nutritive tissue in Gerris najas (Heteroptera)
1977

9/6/5 (Item 1 from file: 34)
09159681 Genuine Article#: 373XT Number of References: 38
Title: Photocatalytic degradation of polychlorinated dibenzo-p-dioxins on
TiO2 film under UV or solar light irradiation (ABSTRACT AVAILABLE)
Publication date: 20001115

File 155:MEDLINE(R) 1966-2004/May W5
 File 5:Biosis Previews(R) 1969-2004/May W5
 File 73:EMBASE 1974-2004/May W5
 File 34:SciSearch(R) Cited Ref Sci 1990-2004/May W4
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
 File 144:Pascal 1973-2004/May W4
 File 2:INSPEC 1969-2004/May W4
 File 6:NTIS 1964-2004/May W5
 File 8:Ei Compendex(R) 1970-2004/May W4
 File 94:JICST-EPlus 1985-2004/May W2
 File 95:TEME-Technology & Management 1989-2004/May W3
 File 99:Wilson Appl. Sci & Tech Abs 1983-2004/Apr
 File 65:Inside Conferences 1993-2004/May W5
 File 35:Dissertation Abs Online 1861-2004/May
 File 67:World Textiles 1968-2004/May
 File 248:PIRA 1975-2004/May W4
 File 103:Energy SciTec 1974-2004/May B2
 File 96:FLUIDEX 1972-2004/May
 File 240:PAPERCHEM 1967-2004/May W5
 File 315:ChemEng & Biotec Abs 1970-2004/May
 File 119:Textile Technol.Dig. 1978-2003/Jun
 File 323:RAPRA Rubber & Plastics 1972-2004/Jun
 File 285:BioBusiness(R) 1985-1998/Aug W1
 File 19:Chem.Industry Notes 1974-2004/ISS 200421
 File 31:World Surface Coatings Abs 1976-2004/Apr

Set	Items	Description
S1	2409338	FIBER? ? OR FIBRE? ? OR FIBROUS OR NONWOVEN OR NON()WOVEN
S2	1493425	COAT????
S3	2650	(ELECTRET OR CHARGED OR STATIC()ELECTRIC??()CHARGE?? OR POLARI?ED OR IONI?ED OR INDUCTIVE OR ELECTROSTATIC)() (FILTER? ? OR MICROFIBRE? ? OR MICROFIBER? ?)
S4	278697	LIQUID()CONDENSED()MONOMER? ? OR ALKYLENE OR ACRYLATE OR METHACRYLATE
S5	1902	(OLEOPHOBIC OR HYDROPHOBIC OR HALOGENATED OR FLUORINATED) (-)MONOMER? ?
S6	64526	HEXAFLUOROPROPYLENE OR FLUOROPOLYMER? ? OR POLYTETRAFLUOROETHYLENE OR FLUORINATED() (ETHYLENEPROPYLENE OR ETHYLENE()PROPYLENE)
S7	2650157	MONOMER? ? OR POLYMER? ?
S8	1007533	VAPOR? OR VAPOUR?
S9	16	S3 AND S1 AND S2
S10	3	S9 AND S4:S7
S11	2	RD (unique items)
S12	89	S1 AND S3 AND S4:S7
S13	1	S8 AND S12
S14	1	S13 NOT S10
S15	6	S1 AND S3 AND S4:S6
S16	6	S15 NOT (S10 OR S13)
S17	3	RD (unique items)
S18	2811046	LIQUID
S19	3	S12 AND S18
S20	3	S19 NOT (S10 OR S13 OR S15)
S21	60	S3/TI,DE AND S12
S22	50	S21 NOT (S10 OR S13 OR S15 OR S19)
S23	36	RD (unique items)
S24	36	Sort S23/ALL/PY,A

11/7,K/1 (Item 1 from file: 6)

DIALOG(R) File 6:NTIS

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1010910 NTIS Accession Number: DE83001616

Evaluation of Permanently Charged Electrofibrous Filters

Biermann, A. H. ; Lum, B. Y. ; Bergman, W.

Lawrence Livermore National Lab., CA.

Corp. Source Codes: 068147000; 9513035

Sponsor: Department of Energy, Washington, DC.

Report No.: UCRL-87535; CONF-820833-14

18 Oct 82 26p

Languages: English Document Type: Conference proceeding

Journal Announcement: GRAI8309; NSA0800

17. DOE nuclear air cleaning conference, Denver, CO, USA, 1 Aug 1982.

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NTIS Prices: PC A03/MF A01

Country of Publication: United States

Contract No.: W-7405-ENG-48

These studies showed that loading the permanently **charged filters** with captured aerosols will lead to a neutralization of the filter charge. The transfer from the captured aerosol to the **fiber** surface and the subsequent neutralization of **fiber** charge. The increased efficiency is due to the additional mechanical capture by the particle deposits. The minimum efficiency obtained during the loading of solid aerosols is determined by the aerosol charge, with highly charged aerosols producing a lower minimum. Permanently **charged filters** lose their **fiber** charge when exposed to organic solvents or ionic water solutions. The **fiber** charge neutralization was minimized by **coating** the charged **fibers** with a **polymer**. Several different **coating** techniques were examined. Unfortunately, preventing the neutralization of **fiber** charge is not sufficient to prevent a deterioration of filter efficiency. (ERA citation 08:002986)

Descriptors: Air filters; * **Polymers** ; Electrostatics; Efficiency; Design ; Air cleaning

11/7,K/2 (Item 1 from file: 240)

DIALOG(R) File 240:PAPERCHEM

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00305067 PAPERCHEM NO: AB6300856

Electret Filter

Tani, H.; Takase, S.

PATENT ASSIGNEES: Toyobo Co. Ltd.

PATENT NUMBER: JP 3065206/JP 91065206 PATENT DATE: 910320 PATENT CLASS#:

B01D39/14

PATENT APP# - DATE OF APPLICATION

JP 89201061 - 890801

SOURCE: Jap. pat. Kokai 65,206/91. March 20, 1991. 6 p. Cl.B01D39/14.

Filed: Jap. appln. 201,061/89 (Aug. 1, 1989).

PUBLICATION YEAR: 1991

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

Sebacic acid or carnauba wax (particle diameter, less than 0.2 micro-m) is used to **coat** and impregnate the surface of an electret **nonwoven**

fabric such as PP. The amount applied is 0.1-1 wt.% of the electret **nonwoven** fabric. The fabric is then exposed to a corona discharge to distribute the additive more unevenly in the profile direction. The additive-rich layers of two electret **nonwoven** fabrics are superimposed and heat-pressed together. The sheet is used as a filter to collect dust.

DESCRIPTORS: ADDITION **POLYMERS** ; DUST FILTERS; FABRIC; FAR EAST; FILTERS ; JAPAN; JAPANESE; NONWOVENS; PATENTS; POLYHYDROCARBONS; POLYOLEFINS; POLYPROPYLENE; PRDS; SEPARATORS...

14/6/1 (Item 1 from file: 94)

04731749 JICST ACCESSION NUMBER: 01A0102516 FILE SEGMENT: JICST-E
Particle Removal by Polypropylene Filter Using Positive DC Corona Discharge in Water Vapour . , 2000

17/7,K/1 (Item 1 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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09668771 Genuine Article#: 434UY Number of References: 4

Title: Charging characteristics for electret filter materials

Author(s): Nifuku M (REPRINT) ; Zhou Y; Kisiel A; Kobayashi T; Katoh H

Corporate Source: Agcy Ind Sci & Technol,Natl Inst Resource &

Envirn,Onogawa 16-3/Tsukuba/Ibaraki 3058569/Japan/ (REPRINT); Agcy Ind

Sci & Technol,Natl Inst Resource & Envirnm,Tsukuba/Ibaraki

3058569/Japan/; Wroclaw Tech Univ,PL-50370 Wroclaw//Poland/; Toyo Roshi

Kaisha Ltd,Niigata Plant,Niigata 9570101//Japan/

Journal: JOURNAL OF ELECTROSTATICS, 2001, V51 (MAY), P200-205

ISSN: 0304-3886 Publication date: 20010500

Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Language: English Document Type: ARTICLE

Abstract: In order to save energy at the time of dust collection, the authors have tried to provide as much charge as possible to **electret filter** , Polypropylene (PP) (**nonwoven** , by melt-blowing) and **polytetrafluoroethylene** (PTFE) (layering of PTFE **fibers** in wet system and heat dried) were used as a sample. High voltage DC corona, pulse corona and pulse with DC corona were applied to the sample materials. The discharge characteristics were investigated in order to provide larger charge for the materials. The results indicate that the pulse with somewhat slower rise time with DC superimposition provides a large charge. The maximum charge obtained was approx. 45 $\mu\text{C}/\text{m}^2$ in the case of PP and approx. 10 $\mu\text{C}/\text{m}^2$ in the case of PTFE. (C) 2001 Elsevier Science B.V. All rights reserved.

17/7,K/2 (Item 1 from file: 94)

DIALOG(R)File 94:JICST-EPlus

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04967938 JICST ACCESSION NUMBER: 01A0960267 FILE SEGMENT: JICST-E

An Experimental Development of Environmentally Friendly Electret Filter

NIFUKU MASA HARU (1); KATO HIROMI (1); SATO SUSUMU (2); KOBAYASHI TADAHIRO

(2); ZHOU Y-X (3)

(1) Sangyogijutsusogoken; (2) Toyo Roshi Kaisha, Ltd.; (3) Tsinghua Univ.

Seidenki Gakkai Koen Ronbunshu, 2001, VOL.2001, PAGE.59-62, FIG.10, REF.3

JOURNAL NUMBER: F0983BAO ISSN NO: 1342-1492

UNIVERSAL DECIMAL CLASSIFICATION: 621.319 628.84+697.94 66.074.2

LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Conference Proceeding

ARTICLE TYPE: Original paper

MEDIA TYPE: Printed Publication

ABSTRACT: Paying attention to the environmental impact, the authors tried to develop environmentally friendly **electret filters**. Polypropylene(PP) filter (**non - woven** , by melt blowing) and **polytetrafluoroethylene** (PTFE) filter (layering of PTFE **fibers** in wet system and heat dried) were made as the samples. After investigating the charging characteristics of electrical charging methods, **electret filters** were manufactured in the laboratory experimentally. High voltage DC corona, pulse corona and pulse with DC corona were applied to investigate the charging characteristics. Pulse with DC corona, having higher charging characteristics, was applied to produce the **electret filters**. Surface charge density and dioctyl phthalate(DOP) collection efficiency were measured to evaluate the samples. PP **electret filter** showed higher collection efficiency 99.3% (pressure drop 17.5mmH2O) and PTFE **electret filter** 97% (Pressure drop 14.8mmH2O) in the case of 0.1-0.15.MU.m DOP collection (air velocity 5.3cm/s). (author abst.)

...DESCRIPTORS: polypropylene **fiber** ; ...
... **polytetrafluoroethylene** ;
...BROADER DESCRIPTORS: polyolefin **fiber** ; ...
...synthetic **fiber** ; ...
...man-made **fiber** ; ...
... **fiber** ;

17/7,K/3 (Item 1 from file: 67)

DIALOG(R)File 67:World Textiles

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00238094 WORLD TEXTILE NO: 1981952 SUBFILE: EMDOCS

Electrostatic filter

AUTHOR(S): Koken Ltd.; Kimura K.

Official Gazette of the U.S. Patent and Trademark Office - Patents, 1225/2
, 1999

COUNTRY OF PUBLICATION: United States

DOCUMENT TYPE: Journal; Patent

RECORD TYPE: ABSTRACT

ISSN: 0098-1133

PATENT NO: USP 5 935 303

PRIORITY APPLICATION: Priority Application: Japan, 8357255, 26 Dec 1996

LANGUAGES: ENGLISH

An **electrostatic filter** includes a **fibrous** component including a mixture of wool and synthetic **fibers** and a resinous component including a perfluoroalkyl **acrylate** copolymer resin and a p-tert-butylphenol formaldehyde resin, which resinous component is adhering to the **fibrous** component, both of the **fibrous** substrate component and the resinous component being in electrostatically charged conditions. IPC B03C.
rostatically charged conditions. IPC B03C.

DESCRIPTORS: BLENDED FABRIC; FILTER; FILTER FABRIC; RESIN; SYNTHETIC **FIBER**
; WOOL **FIBER**

20/6/1 (Item 1 from file: 94)

02365275 JICST ACCESSION NUMBER: 95A0481313 FILE SEGMENT: JICST-E

The Effect of Collection Efficiency by Electrostatic Force on Electret
Filter in Liquids., 1995

20/6/2 (Item 1 from file: 67)

00132382 WORLD TEXTILE NO: 8505215 SUBFILE: BTG (Shirley

Institute)

Degradation of electrostatic filters at elevated temperature and humidity

Filtration & Separation, 1985, 22, No.4, July/August, 239-242 (4 pages)..
1985

20/6/3 (Item 1 from file: 248)

00312064 Pira Acc. Num.: 10177672 Pira Abstract Numbers: 07-92-01111

Title: THE USE OF ELECTRET MICROFIBRE NONWOVENS IN AIR FILTRATION

Publication Year: 1991

24/6/1 (Item 1 from file: 240)

00155350 PAPERCHEM NO: AB5106269

MIXTURE OF OPPOSITELY CHARGED FILTER AID MATERIAL

PUBLICATION YEAR: 1979

24/6/4 (Item 4 from file: 103)

02076763 GBN-86-004426; EDB-88-019484

Title: Collection performance of electret filters in the particle size range 10nm-10..mu..m

Conference title: 13. annual conference of the Association for Aerosol Research (Gesellschaft fuer Aerosolforschung) on aerosols in science, medicine, and technology

Publication Date: Jun 1986

24/6/5 (Item 5 from file: 73)

03657105 EMBASE No: 1988106541

Collection of submicroscopic particles with filter media made of electrically charged fibres (electret filters)

ABSCHEIDUNG SUBMIKROSKOPISCHER PARTIKELN MIT TIEFENFILTERN AUS ELEKTRISCH GELADENEN FASERN (ELEKTRETFILTER)

1988

24/6/8 (Item 8 from file: 5)

0006584784 BIOSIS NO.: 198987032675

EFFECT OF INDUSTRIAL AEROSOLS ON THE PERFORMANCE OF ELECTRICALLY CHARGED FILTER MATERIAL

1988

24/6/9 (Item 9 from file: 103)

02778802 DE-89-013501; EDB-89-169850

Title: Fundamental investigations of collection behaviour of electret filters . Pt. 1. Determination of collection efficiencies

Original Title: Grundlegende Untersuchungen zum Abscheideverhalten der Elektret-Filter. T. 1. Bestimmung der Abscheidegrade

Publication Date: Sep 1989

24/6/10 (Item 10 from file: 248)

00207556 Pira Acc. Num.: 9373227 Pira Abstract Numbers: 07-90-01028

Title: ELECTROSTATIC FILTER EFFECT AND MECHANICAL ACTION

Publication Year: 1989

24/6/12 (Item 12 from file: 248)

00232619 Pira Acc. Num.: 10076568 Pira Abstract Numbers: 07-91-02148

Title: INITIAL EXPERIENCE WITH ELECTRET MICROFIBER FILTERS IN VEHICLE VENTILATION SYSTEMS

Publication Year: 1991

24/6/21 (Item 21 from file: 248)
00357200 Pira Acc. Num.: 10270021 Pira Abstract Numbers: 07-93-01570
Title: DEVELOPMENT OF MELTBLOWN ELECTRET FILTER MEDIA WITH SUPERIOR HEAT RESISTANCE
Publication Year: 1993

24/6/22 (Item 22 from file: 94)
02560081 JICST ACCESSION NUMBER: 95A0917403 FILE SEGMENT: JICST-E
Electrostatic Collection Effect on an Electret Filter Made by Chlorotrifluoroethylene-Ethylene Copolymer Nonwoven Fabric., 1995

24/6/23 (Item 23 from file: 67)
00213197 WORLD TEXTILE NO: 1955438 SUBFILE: EMDOCS
Electrostatic filter and method of filtering dust
1996

24/6/26 (Item 26 from file: 240)
00599624 PAPERCHEM NO: AB6810916
Electrostatic Properties of Fibrous Electret Filters
CONFERENCE TITLE: 1998 Nonwovens Conference
PUBLICATION YEAR: 1998

24/6/27 (Item 27 from file: 95)
01353185 W99116133402
Current possibilities for trapping welding aerosols
(Gegenwaertige Moeglichkeiten des Auffangens von Aerosolen beim Schweissen)
1999

24/6/29 (Item 29 from file: 95)
01658693 20020606141
Hunt for charges in electret filters with a scanning probe microscope
(Die Untersuchung von Ladungen in Elektretfasern mit einem Rastersondenmikroskop)
2001

24/6/33 (Item 33 from file: 144)
15597847 PASCAL No.: 02-0301722
Prediction of collection efficiency of high-performance electret filters
2002

24/6/35 (Item 35 from file: 95)
01788274 20030700709
Electret HVAC media: just the facts
(Ueberblick der Eigenschaften von geladenen Vliesstoffen zur Herstellung von Luftfiltern)
2002

24/6/36 (Item 36 from file: 96)
00421472 FLUIDEX NO: 0491344
Dust loading on electrostatically charged filters in a standard test and a real HVAC system
Filtration and Separation, 40/2 (35-39), 2003

24/7/3 (Item 3 from file: 315)

DIALOG(R)File 315:ChemEng & Biotec Abs

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098856 CEABA Accession No.: 12-12-012589 DOCUMENT TYPE: Journal

Title: Electret filters for high-efficiency and high-flow air cleaning

AUTHOR: Turnhout, J.van; Hoeneveld, W.J.; Adamse, J.-W.C.; Rossen, L.M. van

CORPORATE SOURCE: TNO Division of Technology for Society, Delft Netherlands
N.V. Verto Rotterdam Netherlands

JOURNAL: IEEE Transactions on Industry Applications, Volume: 17, Issue: 2
, Page(s): 240-248

CODEN: ITIACR **ISSN:** 0093-999

PUBLICATION DATE: 1981 (810000) **LANGUAGE:** English

ABSTRACT: A new type of air filter in which the dust particles are captures very effectitvely by electrostatic forces is presented. This is accomplished by making the filter from **polymer fibers** that carry a permanent positive and negative charge. A method is outlined for producing such filters on a large scale and results are given of tests in which the filters are challenged with various aerosols. The advantage of the new filters is that they combine a high capturing efficiency with a low resistance to air flow. Among the numerous applications, personal protective face masks for people working in dusty environments are especially valuable.

24/7/6 (Item 6 from file: 8)

DIALOG(R)File 8:EI Compendex(R)

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02620442 E.I. Monthly No: EI8808069853

Title: ABSCHIEDUNG SUBMIKROSKOPISCHER PARTIKELN MIT TIEFENFILTERN AUS ELEKTRISCH GELADENEN FASERN (ELEKTRETFILTER).

Title: Collection of Submicroscopic Particles with Filter Media Made of Electrically Charged **Fibres (Electret Filters)**.

Author: Baumgartner, Hanspeter; Loeffler, Friedrich

Source: Staub - Reinhaltung der Luft v 48 n 4 Apr 1988 p 131-138

Publication Year: 1988

CODEN: STRHAV **ISSN:** 0039-0771

Language: German

Document Type: JA; (Journal Article) **Treatment:** A; (Applications); X; (Experimental)

Journal Announcement: 8808

Abstract: Filters made of electrically charged **polymer fibres (electret filters)** are a further development of the conventional (uncharged) **fibrous** filters employed for the separation of particles from aerosols. Resulting from the electrostatic charge of the **fibres**, relatively strong forces act on the particles, which lead to high collection efficiencies. In this paper, the experimentally determined collection characteristics of four different types of **electret filters** are presented by means of their respective collection efficiency as a function of the particle size. (Edited author abstract) 16 refs. In German.

24/7/7 (Item 7 from file: 323)

DIALOG(R)File 323:RAPRA Rubber & Plastics

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00356473

TITLE: ELECTRET FILTER

SOURCE: Plastics Industry News (Japan); 34, No.4, April 1988, p.51

JOURNAL ANNOUNCEMENT: 198809 **RAPRA UPDATE:** 198816

DOCUMENT TYPE: Journal Article
LANGUAGE: English
SUBFILE: (R) RAPRA

ABSTRACT: Mitsui Petrochemical Co. have developed an **electret filter** based on a **PP** non-woven cloth. PP film is electrified and made into a fibre state which is used for preparing the **non-woven** cloth. The elimination of tobacco smoke is claimed to be 100% using the filter and the company is running its 1,200 tons/year pilot plant at full operation. Construction of a commercial plant for meeting the increased demand for the PP air filter is being considered. This abstract includes all the information contained in the original article.

24/7/11 (Item 11 from file: 94)

DIALOG(R)File 94:JICST-EPlus
(c)2004 Japan Science and Tech Corp(JST). All rts. reserv.
01157827 JICST ACCESSION NUMBER: 91A0014857 FILE SEGMENT: JICST-E
Electret filter .
ANDO KATSUTOSHI (1)
(1) Toray Industries, Inc., Fibers and Textiles Res. Labs.
Nonwovens Rev, 1990, NO.Sokan Junbigo, PAGE.113-115, FIG.8, TBL.2
JOURNAL NUMBER: L0781AAH ISSN NO: 1341-5697
UNIVERSAL DECIMAL CLASSIFICATION: 677.076.4 66.074.2
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication

24/7/13 (Item 13 from file: 155)

DIALOG(R)File 155:MEDLINE(R)
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08942216 PMID: 2059044
Development and application of new positively charged filters for recovery of bacteriophages from water.
Borrego J J; Cornax R; Preston D R; Farrah S R; McElhaney B; Bitton G
Department of Microbiology, Faculty of Sciences, University of Malaga, Spain.
Applied and environmental microbiology (UNITED STATES) Apr 1991, 57
(4) p1218-22, ISSN 0099-2240 Journal Code: 7605801
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Electronegative and electropositive filters were compared for the recovery of indigenous bacteriophages from water samples, using the VIRADEL technique. Fiber glass and diatomaceous earth filters displayed low adsorption and recovery, but an important increase of the adsorption percentage was observed when the **filters were treated with cationic polymers** (about 99% adsorption). A new methodology of virus elution was developed in this study, consisting of the slow passage of the eluent through the filter, thus increasing the contact time between eluent and virus adsorbed on the filters. The use of this technique allows a maximum recovery of 71.2% compared with 46.7% phage recovery obtained by the standard elution procedure. High percentages (over 83%) of phage adsorption were obtained with different filters from 1-liter aliquots of the samples, except for Virosorb 1-MDS filters (between 1.6 and 32% phage adsorption). Phage recovery by using the slow passing of the eluent depended on the

filter type, with recovery ranging between 1.6% for Virosorb 1-MDS filters treated with polyethyleneimine and 103.2% for diatomaceous earth filters treated with 0.1% Nalco.

Record Date Created: 19910729

Record Date Completed: 19910729

24/7/14 (Item 14 from file: 240)

DIALOG(R)File 240:PAPERCHEM

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00355356 PAPERCHM NO: AB6505356

Manufacture of Electret Filter

Tani, H.; Kubota, S.

PATENT ASSIGNEES: Toyobo Co. Ltd.

PATENT NUMBER: JP 4326911/JP 92326911 PATENT DATE: 921116 PATENT CLASS#:

B01D39/14

PATENT APP# - DATE OF APPLICATION

JP 91125213 - 910425

SOURCE: Jap. pat. Kokai 326,911/92. Nov. 16, 1992. 4 p. Cl.B01D39/14.

Filed: Jap. appln. 125,213/91 (April 25, 1991).

PUBLICATION YEAR: 1992

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

A nonpolar **polymer nonwoven** fabric (**fiber** packing density, 0.07-0.25 cc/cc) such as spun-bonded PP is formed into a bulky **nonwoven** fabric. The **nonwoven** fabric is irradiated with ultrasonic waves and **embossed**. The embossed **nonwoven** fabric is used to manufacture an **electret filter**.

24/7/15 (Item 15 from file: 240)

DIALOG(R)File 240:PAPERCHEM

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00355350 PAPERCHM NO: AB6505350

Manufacture of Electret Filter

Nakao, E.

PATENT ASSIGNEES: Japan Vilene Co. Ltd.

PATENT NUMBER: JP 4358510/JP 92358510 PATENT DATE: 921211 PATENT CLASS#:

B01D39/14

PATENT APP# - DATE OF APPLICATION

JP 84224655 - 841217

SOURCE: Jap. pat. Kokai 358,510/92. Dec. 11, 1992. 4 p. Cl.B01D39/14.

Filed: Jap. appln. 224,655/84 (Dec. 17, 1984).

PUBLICATION YEAR: 1992

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

A polyolefin (intrinsic viscosity, less than 1.5) such as PP is meltblown into fine **fibers**. The **fibers** are spread and needle-punched to yield a web. The web is sandwiched between a discharge wire electrode and an metal plate for grounding. A direct current of 5-10 kV is applied to the electrodes to convert the web into an electret.

24/7/16 (Item 16 from file: 240)

DIALOG(R)File 240:PAPERCHEM

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00353977 PAPERCHM NO: AB6503977

Manufacture of Electret Filter for Cigarette

Kubota, S.; Tani, H.; Takase, S.

PATENT ASSIGNEES: Toyobo Co. Ltd.
PATENT NUMBER: JP 4326910/JP 92326910 PATENT DATE: 921116 PATENT CLASS#:
B01D39/00

PATENT APP# - DATE OF APPLICATION

JP 91125212 - 910425

SOURCE: Jap. pat. Kokai 326,910/92. Nov. 16, 1992. 3 p. Cl.B01D39/00.
Filed: Jap. appln. 125,212/91 (April 25, 1991).

PUBLICATION YEAR: 1992

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

A metal such as aluminum is **vacuum-deposited** on a nonpolar **polymer** film (less than 20 μ m thick) such as a PP film. The amount of the metal deposited is 300-700 Å. The metalized film is slit into strips less than 1 mm wide. The slit yarn is converted to a **nonwoven** fabric (size, 30-100 g/sq m). The **nonwoven** fabric is used to make cigarette filters.

24/7/17 (Item 17 from file: 95)

DIALOG(R)File 95:TEME-Technology & Management

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00705688 M93096162586

A novel electrically charged air filter material

(Ein neues elektrisch geladenes Material fuer Luftfilter)

Brown, RC

The Mining Engineer, v153, nJul, pp4-5, 1993

Document type: journal article Language: English

Record type: Abstract

ISSN: 0026-5179

ABSTRACT:

Es wurde ein neues Filter zur Staubbekaempfung bei der maschinellen Gewinnung im Steinkohlenbergbau entwickelt, das aus etwa gleichen Teilen aus Propylen- und Acrylfasern besteht. Bei der Filterherstellung laden sich die beiden Fasertypen unterschiedlich elektrisch auf. Die Ladung sorgt dafuer, dass die Staubpartikel angezogen werden und eine sehr effektive Filterwirkung erreicht wird. Es werden Aufbau und Wirkungsweise des Filters mit Hilfe von Beispielen beschrieben und zahlreiche Einsatzmoeglichkeiten auch ausserhalb des Bergbaus vorgestellt.

24/7/18 (Item 18 from file: 240)

DIALOG(R)File 240:PAPERCHEM

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00523411 PAPERCHEM NO: AB6604481

Manufacture of Electret Filter

Shinagawa, Y.; Yokoyama, A.; Matsu-ura, S.

PATENT ASSIGNEES: Mitsui Petrochemical Co. Ltd.

PATENT NUMBER: JP 5253417/JP 93253417 PATENT DATE: 931005 PATENT CLASS#:

B01D39/14

PATENT APP# - DATE OF APPLICATION

JP 9255222 - 920013

SOURCE: Jap. pat. Kokai 253417/93. October 5, 1993. 9 p. Cl.B01D39/14.
Filed: Jap. appln. 55222/92 (March 13, 1992).

PUBLICATION YEAR: 1993

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

A mixture of a nonpolar **polymer** (80-95 wt.%) such as PP and a polar **polymer** (1-10 wt.%) such as a polycarbonate and maleic anhydride-grafted PP is extruded to form a film. The film (10-100 mm thick) is stretched and

pressed with an embossing roll to puncture it and form a **fiber** web. The **fiber** web is placed on a dielectric film (5-50 mm thick) such as a PTFE film. A direct electric current (3-30 kV) is applied to the bottom film to yield an electret sheet that is used as an air filter.

24/7/19 (Item 19 from file: 240)

DIALOG(R) File 240:PAPERCHEM

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00523410 PAPERCHM NO: AB6604495

Manufacture of Electret Filter

Yokoyama, A.; Matsu-ura, S.; Shinagawa, Y.

PATENT ASSIGNEES: Mitsui Petrochemical Co. Ltd.

PATENT NUMBER: JP 5253416/JP 93253416 PATENT DATE: 931005 PATENT CLASS#:

B01D39/14

PATENT APP# - DATE OF APPLICATION

JP 9255221 - 920013

SOURCE: Jap. pat. Kokai 253416/93. October 5, 1993. 8 p. Cl.B01D39/14.

Filed: Jap. appln. 55221/92 (March 13, 1992).

PUBLICATION YEAR: 1993

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

A mixture of a nonpolar **polymer** (80-95 wt.%) such as PP and a polar **polymer** (1-10 wt.%) such as a polycarbonate and maleic anhydride-grafted PP is extruded to a film. The film (10-100 mm thick) is stretched and pressed with an embossing roll to puncture it and form a **fiber** web. The **fiber** web is placed on a film (5-50 mm thick) such as a PTFE film. An electric current (3-30 kV) from an electrode is applied to the bottom film and an electric current with opposite polarity is applied to the **fiber** web to yield an electret sheet that is used as an air filter.

24/7/20 (Item 20 from file: 240)

DIALOG(R) File 240:PAPERCHEM

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00523409 PAPERCHM NO: AB6604471

Manufacture of Electret Filter

Matsu-ura, S.; Shinagawa, Y.

PATENT ASSIGNEES: Mitsui Petrochemical Co. Ltd.

PATENT NUMBER: JP 5253415/JP 93253415 PATENT DATE: 931005 PATENT CLASS#:

B01D39/14

PATENT APP# - DATE OF APPLICATION

JP 9255220 - 920013

SOURCE: Jap. pat. Kokai 253415/93. October 5, 1993. 7 p. Cl.B01D39/14.

Filed: Jap. appln. 55220/92 (March 13, 1992).

PUBLICATION YEAR: 1993

DOCUMENT TYPE: PATENT

LANGUAGES: JAPANESE

A mixture of a nonpolar **polymer** (80-95 wt.%) such as PP and a polar **polymer** (1-10 wt.%) such as a polycarbonate and maleic anhydride-grafted PP is extruded to form a film. The film (10-100 mm thick) is stretched and pressed with an embossing roll to puncture it and form a **fiber** web. The pierced film is placed on a different film (5-50 mm thick) such as a PTFE film. An electric current (3-30 kV) from an electrode is applied to the stacked film assembly to yield an electret sheet that is used as an air filter.

24/7/24 (Item 24 from file: 95)

DIALOG(R) File 95:TEME-Technology & Management
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01180855 T98020165124

Recent advances and applications for electrostatically charged filters
(Neueste Fortschritte und Einsatzgebiete fuer elektrostatisch geladene Filter)

Wadsworth, LC; Ping-yi Tsai, P

Univ. of Tennessee, Knoxville, USA

Nonwovens in Filtration, 2nd Internat. Conf., Proc., Stuttgart, D, Mar
18-19, 1997/1997

Document type: Conference paper Language: English

Record type: Abstract

ABSTRACT:

Vliesstofffilter finden aufgrund ihrer guten Filterwirkung und ihres geringen Druckverlustes breite Anwendung bei verschiedenen Filtrationsaufgaben. In Abhaengigkeit vom eingesetzten Material und von der Filterstruktur kann die Filterwirkung gegenueber herkoemmlichen Medien um 400 % gesteigert werden. Unter der Bezeichnung Tantret wurde ein elektrisch geladenes Filtersystem entwickelt. Es wurden die Zusammenhaenge zwischen der elektrischen Leitfaehigkeit der **Polymere** und der Verbesserung der Filterwirksamkeit untersucht. Die Filterleistung wurde mit NaCl-Partikeln der Groesse 0,1 Mikrometer und bei verschiedenen Luftgeschwindigkeiten mit dem Pruefgeraet TSI Modell 8110 getestet. Als Filtermaterialien fanden Polypropylen, Nylon und PET Verwendung. Weiterhin wurden Schmelzblasvliesstoffe aus Polypropylen eingesetzt. Elektrisch aufgeladene Schmelzblasvliesstoffe aus Polypropylen zeigen eine deutlich erhoehte Filterwirkung aufgrund der ultrafeinen Faserstruktur, der geringen elektrischen Leitfaehigkeit, des Fehlens von Faserfinish und der geringen Feuchteabsorption. Der Druckverlust kann durch Falten des Filtermediums oder durch die Einbringung von groben Fasern reduziert werden. Die Filterleistung von Nadelvliesstoffen wird durch die Aufladung ebenfalls verbessert. Beim Einsatz von Poly-1,4-Cyclohexylen-Dimethylen-Terephthatatfasern (PCT) verbessert sich die Filterwirkung von 40 % vor auf 98 bis 99 % nach der Aufladung. Bei Nylonfilter mit einer Feuchtigkeit von 4 % konnte keine Ladung aufgebracht werden. Die Materialstrukturen von PET und PCT unterstuetzen die Stabilitaet der aufgetragenen Ladungen. Durch eine Belastung mit NaCl-Partikeln erhoeht sich der Druckverlust bei Filtern aus schmelzgeblasenem Polypropylen sehr schnell.

24/7/25 (Item 25 from file: 95)

DIALOG(R) File 95:TEME-Technology & Management
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01224634 T98086031124

Electrical charged filter materials

(Elektrisch geladene Filtermaterialien)

Kolinova, M; Richter, A

TU Liberec, CZ

3. Internat. Conference Textile Science TEXCI'98, Liberec, CZ, 1998, Mai,
25. - 27.1998

Document type: Conference paper Language: English

Record type: Abstract

ISBN: 80-7083-289-4

ABSTRACT:

Die Filtration zur Sauberhaltung der Luft gewinnt gegenwaertig zunehmend an Bedeutung. In immer groesseren Rahmen werden Vliesstoffe dafuer eingesetzt.

Die Filterwirksamkeit kann durch die elektrische Aufladung der Vliesstoffe wesentlich erhoeht werden. Eine Aufladung kann entweder durch ein polarisiertes Feld oder durch die elektrostatische Aufladung von dielektrischen Materialien vorgenommen werden. In faserartigen Filtermaterialien spielen elektrostatische Anziehungskraefte eine grosse Rolle. Fasermaterialien koennen triboelektrisch, elektrostatisch, durch Coronaentladung sowie durch elektrische Induktion aufgeladen werden. Das Schema einer elektrischen Polarisationsvorrichtung wird dargestellt. Damit kann eine elektrostatische Ladung durch Coronaentladung erzeugt werden. Die Corona-Glimmentladung erfolgt in der Naehе von duennen Draehten. Die Vorrichtung besteht aus Fuehrungswalzen, Ladungselementen sowie einer Abdeckung. Das Filtermaterial durchlauft die Vorrichtung zwischen den Draehten und den Metallwalzen. Zwischen den beiden Elektroden bestehen starke und disproportionale elektrische Felder. In der Vorrichtung werden lange Draehnte und zylindrische Elektroden mit verschiedenen Durchmessern eingesetzt. Das intensivste elektrische Feld wird durch eine Drahtelektrode erreicht. Dieses Feld ist jedoch im Vergleich zum Feld einer Zylinderelektrode sehr inhomogen. Die Lebensdauer der Ladung im Filtermedium haengt von der Temperatur, der Feuchtigkeit, den elektrischen Eigenschaften des Polymermaterials sowie von der Konvektion der Umgebungsluft ab. Die Leitfaehigkeit der Faser haengt vom **Polymer** und von den Oberflaecheneigenschaften der Faser, insbesondere von der Art des Spinnfinishes, ab.

24/7/28 (Item 28 from file: 144)

DIALOG(R) File 144:Pascal

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14929001 PASCAL No.: 01-0079745

Triboelectric blend enhances air filtration

DROUIN Bernard

Texel Inc, Canada

Journal: Filtration & separation, 2000, 37 (9) 20-23

ISSN: 0015-1882 CODEN: FSEPAA Availability: INIST-15587;

354000093983640010

Document Type: P (Serial) ; A (Analytic)

Country of Publication: United Kingdom

Language: English

Electrostatic filtration is well known to be highly effective in filtering very fine particles, while at the same time maintaining a low pressure drop. Over recent years, the performance requirements for air filtration have become ever more demanding for the removal of fine particles. To meet these tighter requirements, a new triboelectric couple (Tribo SUP T SUP M) for the manufacture of **electrostatic filter media** has been developed by the research and development team at Texel Inc, headquartered in Canada. This article describes experiments and test results that show the couple provides a higher filtration efficiency (FE), along with a lower pressure drop.

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24/7/30 (Item 30 from file: 95)

DIALOG(R) File 95:TEME-Technology & Management

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01611318 20020105109

Fibers with 'Potential'

(Fasern mit 'Potenzial')

McGuire, S; Reese, G

Joint INDA-TAPPI Conf., INTC 2001, Internat. Nonwovens Tech. Conf., Proc.,
Baltimore, USA, Sep 5-7, 20012001
Document type: CD-ROM; 06 Conference paper Language: English
Record type: Abstract

ABSTRACT:

Fuer die Anwendung in Filtern und Reinigungstextilien wurde ein Verfahren zur Herstellung von elektrisch aufladbaren Fasern (Elektretfasern) entwickelt, die ueber einen langen Zeitraum ihren Ladungszustand und damit ihre Filter- oder Reinigungswirkung behalten. In Filtervliesstoffen, die aus elektrisch geladenen Fasern bestehen, werden noch Staubpartikel von etwa 0,1 bis 1 Mikrometer Korngroesse abgeschieden, ohne dass hierzu besonders kleine Filterporen erforderlich sind. Dies wird nach einem patentierten Verfahren erreicht durch Zugabe von CCA(charge control agent)-Additiven in das **Polymer** vor dem Erspinnen. Zwei Varianten von CCA-Additiven sind verwendbar. Eines erhoeht die positive Aufladung (CCA-Additiv 'blau'), das andere die negative Aufladung (CCA-Additiv 'orange'). Durch Mischen beider Additive kann die Ladungswirkung den Kundenerfordernissen angepasst werden. Die Wirkung der Additive wird an Polypropylen (PP), dem CCA-Additiv 'blau' zugegeben wurde, demonstriert. Die Filterwirkung von Meltblown-Vliesstoff aus PP-Fasern mit 5 % CCA-Additiv ist bei allen Feinstaub-Partikelgroesen wesentlich groesser als bei Filtern aus PP-Fasern ohne CCA. Auch in Mischung mit Polyesterfasern (PES) verbessern die das CCA-Additiv enthaltenden PP-Fasern deutlich die Leistungsfahigkeit der Filter. Das Auftreten des triboelektrischen Effekts zwischen PES- und PP-Fasern erhoeht zusaetzlich die Aufladung und damit die Filterwirkung. Mit der Entwicklung von CCA enthaltenden Stapelfasern wurde die Moeglichkeit fuer die Herstellung von Vliesstoffen fuer eine Vielzahl von Spezialanwendungen geschaffen.

24/7/31 (Item 31 from file: 67)

DIALOG(R)File 67:World Textiles

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00255423 WORLD TEXTILE NO: 2001950

Electret articles and filters with increased oily mist resistance

AUTHOR(S): Rousseau A.D.; Jones M.E.; Mei B.Z.; Innovative Properties
Company

U.S. Patent and Trademark Office, -/WEEK 22, 2001

COUNTRY OF PUBLICATION: United States

DOCUMENT TYPE: Journal; Patent

RECORD TYPE: ABSTRACT

PATENT NO: USP 6238466

PATENT PUBLICATION DATE: 941270, 01 Oct 1997

LANGUAGES: ENGLISH

Novel electret articles containing a **polymer** and a performance-enhancing additive can be identified by their thermally stimulated conductivity characteristics or their filtration properties. Electret articles such as **nonwoven** filter webs and respirators exhibit superior oily mist loading performance, low penetration and a small pressure drop.

24/7/32 (Item 32 from file: 67)

DIALOG(R)File 67:World Textiles

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00253901 WORLD TEXTILE NO: 2000434

Electret filters that exhibit increased oily mist resistance

AUTHOR(S): Rousseau A.D.; Jones M.E.; Mei B.Z.

U.S. Patent and Trademark Office, -/WEEK 15, 2001

COUNTRY OF PUBLICATION: United States
DOCUMENT TYPE: Journal; Patent
RECORD TYPE: ABSTRACT
PATENT NO: USP 6214094
PATENT PUBLICATION DATE: 483768, 18 Jan 2000
MANUFACTURER NAMES: 3 M Innovative Properties Company
LANGUAGES: ENGLISH

The thermally stimulated discharge current of an electret article can be used to identify electret articles that exhibit superior filtration properties. **Electret filters** that exhibit superior properties not achieved in similarly constructed filters contain **fibers** that are made from a blend of a **polymer** and a performance-enhancing additive. The **electret filters** exhibit an initial detectable DOP penetration of less than 5% and an average MinGAMMAhl of greater than 200 mg DOP as measured by DOP Filter Web Loading Test Procedure 1. These new electrets are particularly useful in a respirator.

24/7/34 (Item 34 from file: 34)

DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

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10478129 Genuine Article#: 531BG Number of References: 9

Title: Different electrostatic methods for making electret filters

Author(s): Tsai PP (REPRINT) ; Schreuder-Gibson H; Gibson P

Corporate Source: Univ Tennessee, Text & Nonwovens Dev Ctr, TANDEC, 1321 White Ave/Knoxville//TN/37996 (REPRINT); Univ Tennessee, Text & Nonwovens Dev Ctr, TANDEC, Knoxville//TN/37996; USA, Natick Res Dev & Engrn Ctr, Soldier Syst Command, Natick//MA/01760

Journal: JOURNAL OF ELECTROSTATICS, 2002, V54, N3-4 (MAR), P333-341

ISSN: 0304-3886 Publication date: 20020300

Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Language: English Document Type: ARTICLE

Abstract: Three charging techniques (viz., corona charging, tribocharging, and electrostatic **fiber** spinning) were used to charge **fibers** or fabrics of different **polymer** types. Corona charging is suitable for charging monopolymer **fiber** or **fiber** blend, or fabrics. Tribocharging is only appropriate for charging **fibers** with dissimilar electronegativity. Electrostatic **fiber** spinning combines the charging of **polymer** and the spinning of the **fibers** as a one-step process. It was observed that two dissimilar **fibers** following tribocharging had higher filtration efficiency than the corona-charged polypropylene **fibers**. An electrostatic spinning process produced nanofibers exhibiting extremely high efficiency by mechanical filtration mechanisms. Little charge was retained in electrospun polyethylene oxide **fibers**; however, polycarbonate and polyurethane retained a great amount of charge. (C) 2002 Elsevier Science B.V. All rights reserved.

File 98:General Sci Abs/Full-Text 1984-2004/May
File 9:Business & Industry(R) Jul/1994-2004/Jun 03
File 16:Gale Group PROMT(R) 1990-2004/Jun 04
File 160:Gale Group PROMT(R) 1972-1989
File 148:Gale Group Trade & Industry DB 1976-2004/Jun 04
File 621:Gale Group New Prod.Annou.(R) 1985-2004/Jun 02
File 149:TGG Health&Wellness DB(SM) 1976-2004/May W4
File 636:Gale Group Newsletter DB(TM) 1987-2004/Jun 03
File 441:ESPICOM Pharm&Med DEVICE NEWS 2004/May W5
File 369:New Scientist 1994-2004/May W4
File 370:Science 1996-1999/Jul W3
File 15:ABI/Inform(R) 1971-2004/Jun 03
File 481:DELPHES Eur Bus 95-2004/May W4
File 624:McGraw-Hill Publications 1985-2004/Jun 03
File 635:Business Dateline(R) 1985-2004/Jun 03
File 80:TGG Aerospace/Def.Mkts(R) 1986-2004/Jun 04

Set	Items	Description
S1	884950	FIBER? ? OR FIBRE? ? OR FIBROUS OR NONWOVEN OR NON()WOVEN
S2	533967	COAT????
S3	649	(ELECTRET OR CHARGED OR STATIC()ELECTRIC??()CHARGE?? OR POLARIZED OR IONIZED OR INDUCTIVE OR ELECTROSTATIC)() (FILTER? ? OR MICROFIBRE? ? OR MICROFIBER? ?)
S4	15479	LIQUID()CONDENSED()MONOMER? ? OR ALKYLENE OR ACRYLATE OR METHACRYLATE
S5	118	(OLEOPHOBIC OR HYDROPHOBIC OR HALOGENATED OR FLUORINATED) (-)MONOMER? ?
S6	10094	HEXAFLUOROPROPYLENE OR FLUOROPOLYMER? ? OR POLYTETRAFLUOROETHYLENE OR FLUORINATED() (ETHYLENEPROPYLENE OR ETHYLENE()PROPYLENE)
S7	295522	MONOMER? ? OR POLYMER? ?
S8	106527	VAPOR? OR VAPOUR?
S9	1893075	TREATED OR TREATMENT? ?
S10	4	S1(S)S2(S)S3
S11	3	S1(S)S9(S)S3
S12	2	S10:S11 AND S4:S7
S13	2	RD (unique items)
S14	3	S10:S11 NOT S12
S15	3	RD (unique items)
S16	2	S3(S) (S2 OR S9) (S)S4:S7
S17	1	S16 NOT S10:S11 [not relevant]
S18	0	S3(S)S4:S6
S19	6	S3(S)S8
S20	6	S19 NOT S10:S17
S21	6	RD (unique items)

13/3,AB,K/2 (Item 2 from file: 148)

DIALOG(R)File 148:Gale Group Trade & Industry DB
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05173741 SUPPLIER NUMBER: 10823157 (USE FORMAT 7 OR 9 FOR FULL TEXT)
The nonwovens industry meets the filtration business. (first INDA Filtration Conference) (includes related article on role of American Filtration Society)
Jacobsen, Michael
Nonwovens Industry, v22, n5, p36(4)
May, 1991

ISSN: 0163-4429

LANGUAGE: ENGLISH

RECORD TYPE: FULLTEXT

WORD COUNT: 2376

LINE COUNT: 00192

... to the **filtration** market, has developed and patented a process called electrostatic spinning, in which **polymer** fibers are spun in an electrostatic field. Joerg Sievert, of Freudenberg Nonwovens, Chelmsford, MA, one...

...developed by Japanese producer Toray Industries is promoted as an **electret filter** consisting of a **nonwoven** fabric with microfibers that form electrets when **treated** by a special method.

As a result, according to a paper by Toray's Katsutoshi...

15/3,AB,K/2 (Item 1 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)
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01627249 02-78238

The effects of particle charge on the performance of a filtering facepiece
Chen, Chih-Chieh; Huang, Sheng-Hsiu
American Industrial Hygiene Association Journal v59n4 PP: 227-233 Apr 1998 ISSN: 0002-8894 JRNL CODE: AIH
WORD COUNT: 3892

ABSTRACT: This study quantitatively determined the effect of electrostatic charge on the performance of an **electret filtering** facepiece. Monodisperse challenge corn oil aerosols with uniform charges were generated using a modified vibrating orifice monodisperse aerosol generator. The aerosol size distributions and concentrations upstream and downstream of an electret builder were measured using an aerodynamic particle sizer, an Aerosizer, and a scanning mobility particle sizer. The aerosol charge was measured by using an aerosol electrometer. The tested electret builder had a packing density of about 0.08, fiber size of three micrometers and thickness of 0.75 millimeters. As expected, the primary patrician mechanisms for the micrometer-sized particles are interception and impaction. Other results are discussed.

...**TEXT:** orifice monodisperse aerosol generator. The aerosol size distributions and concentrations upstream and downstream of an **electret filter** were measured using an aerodynamic particle sizer, an Aerosizer, and a scanning mobility particle sizer. The aerosol charge was measured by using an aerosol electrometer. The tested **electret filter** had a packing density of about 0.08, **fiber** size of 3 m, and thickness of 0.75 mm. As expected, the primary filtration...

... while electrostatic attraction and diffusion are the filtration mechanisms for submicrometer-sized aerosol particles. The **fiber** charge density was estimated to be 1.35×10^{-5} coulomb per square meter. After **treatment** with isopropanol, most of **fiber** charges were removed, causing the 0.3-em aerosol penetration to increase from 36 to...

... resistance of the filter increased slightly after immersion in the isopropanol, probably due to the **coating** of impurities in isopropanol. The aerosol penetration decreased with increasing aerosol charge. The most penetrating... The scanning electron micrographs, as shown in Figure 3, revealed no observable difference between the **electret filter** and the filter **treated** with isopropanol.

(Graph Omitted)

Captioned as: FIGURE 2

However, aerosol penetration through the filter treated with isopropanol was much higher than through the **electret filter**, as shown in Figure 4, which is composed of the data from two particle counters...

... face velocity of 10 cm/sec, the penetrations of 0.3-em aerosol through the **treated filter** and the **electret filter** were 70% and 34%, respectively, indicating that the electrostatic force on the **electret**

filter was ... small particles by diffusion and/or electrostatic attraction. The most penetrating aerosol size through the **treated filter** decreased with increasing face velocity. This phenomenon was not as clear for the **electret filter**. If the data is presented in terms of collection efficiency instead of penetration percentage, the collection efficiency of 0.3- μ m aerosol by the **treated filter** was about 30% (= 1-70% penetration, velocity 10 cm/sec). In addition to this 30% collection efficiency due to mechanical force, the electrical force of the **electret filter** added another 36%, so that the aerosol penetration through the **electret filter** appeared to be 34%, as shown in Figure 4. Yet, a previous study 4 reported that although isopropanol appeared to reduce the electrostatic force of the **electret filter**, there might still be a small amount of residual charges left on the **fibers**. The penetration data above 4 μ m are not presented because the number counts of aerosol...

... 4.6 μ m. The fiber charge densities held by the isopropanol-treated filter and the **electret filter** were calculated to be 2.1×10^{-6} coulomb per square meter (C/m²...

... the high (also stable) penetration in the submicrometer-size range, so the estimation of the **fiber** charge density would be easier and more accurate.

As expected, for a fixed aerosol size... in Figure 9. The aerosol penetrations through the treated filter were higher than through the **electret filter**. The drop in penetration of smaller particles (through the isopropanol **treated filter**) such as 1- μ m was much more drastic than that of the larger particles, with the same result for the **electret filter**. The shift in the most penetrating aerosol size was quite radical for the first 200...

15/3,AB,K/3 (Item 2 from file: 15)
DIALOG(R)File 15:ABI/Inform(R)
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00738454 93-87675

Loading and filtration characteristics of filtering facepieces

Chen, C C; Lehtimaki, M; Willeke, K
American Industrial Hygiene Association Journal v54n2 PP: 51-60 Feb 1993
ISSN: 0002-8894 JRNL CODE: AIH
WORD COUNT: 6099

ABSTRACT: Respirators and air pollution devices have used **fibrous filters** to remove particulate matter and improve air quality. Dust-mist filtering facepieces that have similar fiber diameters and packing densities are examined. At a face velocity of 10 cm/s (corresponding to 100 L/min through a complete filtering facepiece), electrical force removal accounts for 69% of the total filtration for the respirator found to have the best filter quality but only 25% for the respirator (from a different manufacturer) found to have the worst filter quality. The experimental data indicate that the removal efficiency of these facepieces is reduced in time by as much as this amount. However, under normal wear conditions, the total aerosol particle load is not as high as shown and the filtering facepieces are likely to be discarded before the fiber charges (i.e., the electrostatic attractions) are diminished significantly.

...TEXT: study, we have examined the effect of loading respiratory filtering facepieces.

In studies on industrial **electret filters**, some chemicals, such as distilled water, sodium chloride solution, and ethanol have been used to reduce the **fiber** charge.(19) Kanaoka et al. found that an industrial

electret filter treated with ethanol had a significant increase in aerosol penetration, indicating that some of the **fiber** charges were removed. (19) In our study, more efficient chemicals were used to remove the ... suggests that all of the tested facepieces cany some degree of electrical charge on their **fibers** and that particle removal by electrical attraction accounts for a significant fraction of aerosol particle removal in filtering facepieces. As the **fibers** get coated by the particles--liquid corn oil aerosol particles in this case, used conventionally in fit testing--the electrical charge on the **fibers** is shielded and becomes less effective in attracting particles. Performance evaluations of industrial **electret filters** have shown similar increases in aerosol penetration. (17,18)

The effect of the number of...

... of the two dust-mist filtering facepieces was estimated to be about 0.05.

Electrically **charged filters** (electrets) are normally very stable, lasting for years. (2) However, the **fiber** charge is reduced and the performance decreases when **electret filters** are exposed ... (19) Isopropanol and static guard were found to be capable of removing almost all the **fiber** charges. This is demonstrated in Figure 7. (Figure 7 omitted) For filters without any chemical **treatment**, the aerosol penetration first increases with aerosol loading because of the reduction of the electrical force due to **fiber coating**. With further aerosol loading, the aerosol penetration decreases because of the filter's increased packing...

21/8/5 (Item 2 from file: 15)

DIALOG(R)File 15:(c) 2004 ProQuest Info&Learning. All rts. reserv.

01447046 00-98033

USE FORMAT 9 FOR FULL TEXT

Zapping tuberculosis WORD COUNT: 704 LENGTH: 1 Pages

Jul/Aug 1997

COMPANY NAMES:

Electric Power Research Institute

Consolidated Edison Co (DUNS:00-698-2359 TICKER:ED)

GEOGRAPHIC NAMES: US

DESCRIPTORS: Electric utilities; Ventilation; R&D; Disease

CLASSIFICATION CODES: 9190 (CN=United States); 8340 (CN=Electric, water & gas utilities); 5400 (CN=Research & development); 9000 (CN=Short Article)

21/8/6 (Item 3 from file: 15)

DIALOG(R)File 15:(c) 2004 ProQuest Info&Learning. All rts. reserv.

01217896 98-67291

USE FORMAT 9 FOR FULL TEXT

Laundry your dirty air WORD COUNT: 2934 LENGTH: 7 Pages

May 1996

COMPANY NAMES:

OSHA

GEOGRAPHIC NAMES: US

DESCRIPTORS: Occupational hazards; Indoor air quality; Ventilation; Federal regulation; Compliance; Industrial equipment

CLASSIFICATION CODES: 5340 (CN=Safety management); 4310 (CN=Regulation); 9190 (CN=United States)

21/3,AB,K/2 (Item 1 from file: 160)

DIALOG(R)File 160:Gale Group PROMT(R)

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00943700

Aerospace (El Segundo, CA) scientists have proposed several new applications for a highly efficient, filter medium: electret.

News Release (for further information apply to company indexed) July 27, 1983 p. 1-31

Electret filters are successfully used to remove solid and vapor contaminants from liquid rocket propellants and trap tobacco smoke and road dust particles carried by airstreams. Particulate, colloidal and volatile iron contaminants must be reduced to an acceptable level before pumping propellant into a spacecraft. Otherwise, these contaminants could have a possible negative impact on the rocket engine performance. Further tests conducted in the Aerospace lab show these electret materials are just as effective in trapping submicron size particles in the air environment. Electrets are usually made from **polymers**, such as teflon and polypropylene. Large potential gradients near the filter material enhance its capture efficiency. Since the polymers are not easily electrically neutralized due to high insulating properties, these materials can retain strong charges for up to several years in humid air and other relatively adverse environments. These filters will not hamper breathing when worn as an allergy protection mask in the garden and can be placed in room ventilation ducts without an air pump. (Aerospace Corporation news release)

21/3,AB,K/4 (Item 1 from file: 15)

DIALOG(R)File 15:ABI/Inform(R)

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02246846 86916359

Filtration in industrial hygiene

Brown, Richard C

Aihaj v62n5 PP: 633-643 Sep/Oct 2001 ISSN: 1529-8663 JRNL CODE: AIH

WORD COUNT: 7095

ABSTRACT: Filters used in industrial hygiene are of 2 basic types, corresponding with the 2 basic airborne hazards: particulate and vapor. By use of the correct type, adequate filtration efficiency can usually be achieved. Most particulate filters are made from **fibers**, and finer fibers result in higher efficiency. Most vapor filters are made from granules of activated carbon, which have an extremely large effective surface area, where molecules of contaminant are absorbed. It is important that the choice of a filter should be made with close reference to the situation in which it is to be used, and optimum respiratory protection should be sought, rather than maximum filtration efficiency. Special problems of filters are illustrated by some case histories, and finally the use of filters as size selectors for dust samplers is briefly described.

...**TEXT:** in such a way that this problem is avoided. The special case of loading electrically **charged filters** is intermediate in behavior and will be discussed later.

In the case of filters that...the Beilby medal of the Royal Society of Chemistry for the development of a triboelectrically **charged filter** material, now in widespread use; and in 1994 he was awarded a higher doctorate for...

File 350:Derwent WPIX 1963-2004/UD,UM &UP=200434

File 347:JAPIO Nov 1976-2004/Jan(Updated 040506)

File 371:French Patents 1961-2002/BOPI 200209

Set	Items	Description
S1	954007	FIBER? ? OR FIBRE? ? OR FIBROUS OR NONWOVEN OR NON()WOVEN
S2	1059092	COAT????
S3	1784	(ELECTRET OR CHARGED OR STATIC()ELECTRIC??()CHARGE?? OR POLARI?ED OR IONI?ED OR INDUCTIVE OR ELECTROSTATIC) () (FILTER? ? OR MICROFIBRE? ? OR MICROFIBER? ?)
S4	288930	LIQUID()CONDENSED()MONOMER? ? OR ALKYLENE OR ACRYLATE OR METHACRYLATE
S5	2089	(OLEOPHOBIC OR HYDROPHOBIC OR HALOGENATED OR FLUORINATED) (-)MONOMER? ?
S6	25189	HEXAFLUOROPROPYLENE OR FLUOROPOLYMER? ? OR POLYTETRAFLUOROETHYLENE OR FLUORINATED() (ETHYLENEPROPYLENE OR ETHYLENE()PROPYLENE)
S7	1530904	MONOMER? ? OR POLYMER? ?
S8	285157	VAPOR? OR VAPOUR?
S9	1516421	TREATED OR TREAT OR TREATS OR TREATING OR TREATMENT? ?
S10	22572	IC=A62B
S11	366690	IC=B01D
S12	86	S1 AND S3 AND (S2 OR S9)
S13	6	S12 AND S4:S6
S14	29	S12 AND S7
S15	24	S14 NOT S13
S16	18	S15 AND S10:S11
S17	6	S15 NOT S16
S18	9	(S2 OR S9) (5N)S4:S7 AND S3
S19	1	S18 NOT (S13 OR S16 OR S17)

13/7,K/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013815579 **Image available**

WPI Acc No: 2001-299791/200131

Multi-functional computer disk drive filter comprises two filter layers with specified properties for selective removal of particulate and vapor phase contaminants

Patent Assignee: GORE ENTERPRISE HOLDINGS INC (GORE)

Inventor: DAUBER E

Number of Countries: 078 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200114041	A2	20010301	WO 2000US23060	A	20000823	200131 B
AU 200069261	A	20010319	AU 200069261	A	20000823	200136
US 6395073	B1	20020528	US 99150279	P	19990823	200243
			US 2000644009	A	20000823	
EP 1218090	A2	20020703	EP 2000957676	A	20000823	200251
			WO 2000US23060	A	20000823	
JP 2003507835	W	20030225	WO 2000US23060	A	20000823	200317
			JP 2001518171	A	20000823	

Priority Applications (No Type Date): US 99150279 P 19990823; US 2000644009 A 20000823

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200114041	A2	E	55	B01D-039/00	

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK EE ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM
TR TT UA UG UZ VN

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU
MC NL PT SE

AU 200069261 A B01D-039/00 Based on patent WO 200114041
US 6395073 B1 B01D-053/04 Provisional application US 99150279
EP 1218090 A2 E B01D-046/10 Based on patent WO 200114041

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

JP 2003507835 W 63 G11B-033/14 Based on patent WO 200114041

Abstract (Basic): WO 200114041 A2

NOVELTY - Disk drive filter comprises an adhesive layer with at least one opening located over a breather hole in a disk drive and two filter layers. The first and second filter layers respectively have an air permeability of 0.05 - 40 Frazier and 18 - 1000 Frazier, and a particle filtration efficiency of at least 90% and at least 5% for 0.1 micron particles for selective removal of contaminants.

USE - For removing particulate and vapor phase contaminants from electronic or optical devices prone to contamination, such as computer hard disk drives, optical surfaces, data recording devices, electronic connections, enclosures for processing thin films and semiconductor wafers and electronic control boxes for automobile and industrial applications.

ADVANTAGE - Reduces static friction and head crash failure of contamination-sensitive high density computer disk drives. A diffusion tube provides a combined multifunctional filter for removal of vapor and particulate phase contaminants from external, incoming air and internal, recirculated air. Incorporation of a gasket or vibration dampener reduces the number of components required in a completed disk drive. The filter is low in outgassing and nonvolatile residues and particulates. It can also be washed in deionized water to remove surface ionic contamination and particulates.

DESCRIPTION OF DRAWING(S) - The drawing shows the filter within a disk drive housing.

recirculation component (7)
breather vent hole (11)
breather component (12)
external air (16)
adsorbent layers (18, 19)
pp; 55 DwgNo 1/19

Derwent Class: A88; J01

International Patent Class (Main): B01D-039/00; B01D-046/10; B01D-053/04;
G11B-033/14

International Patent Class (Additional): B01D-039/14; B01D-039/16;
B01D-053/02; B01D-063/08; B01D-071/12; B01D-071/16; B01D-071/26;
B01D-071/30; B01D-071/36; B01D-071/48; B01D-071/50; B01D-071/56

Technology Focus:

... adsorbent. The adhesive layer additionally comprises a diffusion tube. The second filter layer comprises a **fibrous** electret material bonded to a support. An outer layer of scrim, woven or **non - woven** material constrains protruding **fibers** from the **electret filter** layer. A gasket is adhered to at least some of the filter...

...Preferred Materials: The adhesive layer comprises a double sided adhesive of non-particulating permanent acrylic **coated** on a carrier.

The first filter layer is polypropylene, nylon, a composite of polycarbonate and polyester, mixed cellulose ester, polyvinyl chloride, or cellulose triacetate, but especially expanded **polytetrafluoroethylene**. The polymeric scaffold is a membrane of polypropylene, polyethylene, polyvinylidene fluoride, polyvinyl alcohol, poly(ethylene)...

...capable of creating a membrane with a microstructure of nodes and fibrils, but especially expanded **polytetrafluoroethylene**. The electret material comprises an electrically-charged blend of expanded porous **polytetrafluoroethylene fibers** and polyamide **fibers**...

...a physisorber made from silica gel, activated carbon, activated alumina, molecular sieves, clays or superabsorbent **fibers**, or a chemisorber made from calcium carbonate, potassium permanganate, sodium carbonate, potassium carbonate, sodium phosphate...

13/7,K/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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013674725 **Image available**

WPI Acc No: 2001-158937/200116

Alkylated fluorochemical oligomeric compounds useful in films, sheets, fibers and oily mist resistant electret filter comprise fluorochemical oligomeric portion linked to aliphatic backbone through linking group

Patent Assignee: 3M INNOVATIVE PROPERTIES CO (MINN)

Inventor: DAMS R J; JARIWALA C P; JONES M E; KLUN T P

Number of Countries: 088 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200068189	A1	20001116	WO 99US20063	A	19990901	200116 B
AU 9958001	A	20001121	AU 9958001	A	19990901	200117
US 6288157	B1	20010911	US 99309836	A	19990511	200154
JP 2002544188	W	20021224	WO 99US20063	A	19990901	200313
			JP 2000617170	A	19990901	

Priority Applications (No Type Date): US 99309836 A 19990511

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200068189 A1 E 51 C07C-323/52

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW

AU 9958001 A C07C-323/52 Based on patent WO 200068189

US 6288157 B1 C08K-003/00

JP 2002544188 W 62 C07C-323/52 Based on patent WO 200068189

Abstract (Basic): WO 200068189 A1

NOVELTY - An alkylated fluorochemical oligomeric compound (1) comprises a fluorochemical oligomeric portion (a); an aliphatic moiety and a linking group.

DETAILED DESCRIPTION - An alkylated fluorochemical oligomeric compound (1) comprises: a fluorochemical oligomeric portion (a); an aliphatic moiety and a linking group. (a) has several fluoroaliphatic group each linked to a carbon atom of the aliphatic backbone through an organic linker and each group has a fully fluorinated terminal group.

INDEPENDENT CLAIMS are also included for:

(A) a synthetic organic polymer composition comprising (1) and a synthetic organic polymer;

(B) shaped articles such as films, sheets and **fibers** comprising a melt-processible thermoplastic polymer and (1); and

(C) an oily mist resistant **electret filter** medium comprising a polypropylene electret **fibers** and (1).

USE - In synthetic organic polymer composition, shaped article such as films, sheets, **fibers** and as oily mist resistant **electret filter** medium (claimed). The films and sheets may be used in electrostatic element such as microphones, headphones, speakers, in dust particle control, high voltage electrostatic generator, electrostatic recorders, etc. As tropical **treatments** for **fibrous** substrates such as textiles and fabrics and as polymer melt additives to provide desirable oil, water and stain repellency to shaped articles. In preparation of **non - woven** fabrics used in medical gowns, drapes and masks. The films are useful moisture and/or grease-resistance packaging, release liners and as multilayer constructions. The filter medium is useful as an air filter element of a respirator such as a face mask or for such purposes as heating, ventilation and air-conditioning.

ADVANTAGE - The compound imparts oil, water and stain repellency to the surface of the shaped articles. In medical gowns, drapes and masks the compound provides repellency to bodily fluids.

pp; 51 DwgNo 0/0

Derwent Class: A60; A85; E19; F01; J01

International Patent Class (Main): C07C-323/52; C08K-003/00

International Patent Class (Additional): C07C-311/04; C08K-005/372;

C08K-005/375; C08K-005/435; C08L-101/00; C09K-003/18; D01F-006/46;

D04H-001/42; D06M-013/252

Technology Focus:

... L=linking group (preferably covalent bond, straight, branched or cyclic **alkylene**, arylene, aralkylene, oxy, oxo, hydro, thio, sulfonyl, sulfoxy, amino, imino, sulfonamido, carboxamido, carbonyloly, urethaneylene and...

...Preferred Filter Medium: The **fibers** in the electret filler medium are annealed and have a diameter of 2 - 30 micrometers.

13/7,K/5 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO

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07781602

METHOD FOR MANUFACTURING **ELECTRET FILTER**

PUB. NO.: 2003-275516 [JP 2003275516 A]

PUBLISHED: September 30, 2003 (20030930)

INVENTOR(s): TSUDA OSAMU

OKUGAWA KATSUHIRO

SUZUKI TAKANORI

APPLICANT(s): TOMOEGAWA PAPER CO LTD

APPL. NO.: 2002-078261 [JP 200278261]

FILED: March 20, 2002 (20020320)

ABSTRACT

PROBLEM TO BE SOLVED: To provide a filter which can maintain high capturing efficiency with a small pressure drop which is heretofore not possible with the prior art for a long period.

SOLUTION: The method for manufacturing the **electret filter** comprises sheeting **polytetrafluoroethylene fibers** by a wet sheeting process to

make a fluorine **fiber** sheet and applying an electric charge to the fluorine **fiber** sheet while heating the sheet thereby subjecting the sheet to an electret **treatment** .

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13/7,K/6 (Item 2 from file: 347)

DIALOG(R) File 347: JAPIO

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04934910

ELECTRET FILTER

PUB. NO.: 07-227510 [JP 7227510 A]

PUBLISHED: August 29, 1995 (19950829)

INVENTOR(s): SAEN HAJIME

HIRATA REIJI

MURAKAMI TOMOYUKI

APPLICANT(s): NITTO DENKO CORP [000396] (A Japanese Company or Corporation)
, JP (Japan)

APPL. NO.: 06-020193 [JP 9420193]

FILED: February 17, 1994 (19940217)

ABSTRACT

PURPOSE: To obtain both of mechanical strength and removing rate of dust by laminating electret porous films and **nonwoven** fabric comprising **fibers** produced by **coating** a resin having high melting point as the core with a resin having low melting point like a sheath around the core.

CONSTITUTION: This **electret filter** is produced by laminating both at least one porous film and **nonwoven** fabric. Namely, the filter is produced by laminating **nonwoven** fabric on one or both surfaces of a porous film or by laminating porous films on both surfaces of **nonwoven** fabric. In this case, the porous film comprising a heat-resistant resin such as **polytetrafluoroethylene** is **treated** with corona discharge or the like to change it into an electret. As for the heat-resistant resin, such a resin having higher melting point than the material to form the sheath of the **fiber** which constitutes the **nonwoven** fabric is selected. The **nonwoven** fabric consists of the **fibers** produced by **coating** a resin having high melting point as the core with a resin having low melting point like a sheath around the core.

16/34/1 (Item 1 from file: 350)

DIALOG(R) File 350: Derwent WPIX

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013831847

WPI Acc No: 2001-316059/200133

Preparation of high dielectric non - woven fabric for electrostatic filter and sweeper, involves mix-spinning polyvinylidene fluoride and polypropylene, polarizing formed fiber and forming fabric from polarized fiber

Patent Assignee: SHIN CHANG TECHNOLOGY INC (SHIN-N); MENTOR PARTNERS INC (MENT-N); SHIN CHANG TECH CO LTD (SHIN-N); ASIAVISION INC (ASIA-N);

ASIAVISION NETWORK JH (ASIA-N); CHUNG S (CHUN-I); JOO J (JOOJ-I); LEE C (LEEC-I); CLEAN AIR TECHNOLOGY CO (CLEA-N)

Inventor: CHUNG S; JOO J; LEE C; JU J S; JUNG S G; LEE C J; CHUNG S G; JOO J S

Number of Countries: 094 Number of Patents: 011

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200120076	A2	20010322	WO 2000KR975	A	20000830	200133 B
AU 200067389	A	20010417	AU 200067389	A	20000830	200140

KR 2001049986	A	20010615	KR 200045161	A	20000804	200171
KR 2002079627	A	20021019	KR 200243411	A	20020723	200316
KR 2002081152	A	20021026	KR 200243410	A	20020723	200317
JP 2003509597	W	20030311	WO 2000KR975	A	20000830	200319
			JP 2001523440	A	20000830	
KR 379599	B	20030410	KR 200045161	A	20000804	200353
US 6602457	B1	20030805	US 2000656646	A	20000907	200353
US 20030196899	A1	20031023	US 2000656646	A	20000907	200370
			US 2003424524	A	20030428	
US 20030198820	A1	20031023	US 2000656646	A	20000907	200370
			US 2003424522	A	20030428	
US 20030209839	A1	20031113	US 2000656646	A	20000907	200382
			US 2003424523	A	20030428	

Priority Applications (No Type Date): KR 200045161 A 20000804; KR 9939918 A 19990916; KR 200035672 A 20000627

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200120076	A2	E	16	D21F-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200067389	A		D04H-001/42	Based on patent WO 200120076
KR 2001049986	A		B01D-039/02	
KR 2002079627	A		D04H-013/00	
KR 2002081152	A		B01D-039/08	
JP 2003509597	W	14	D04H-001/42	Based on patent WO 200120076
KR 379599	B		B01D-039/02	Previous Publ. patent KR 2001049986
US 6602457	B1		D01D-005/28	
US 20030196899	A1		B03C-005/00	Div ex application US 2000656646 Div ex patent US 6602457
US 20030198820	A1		B29C-047/00	Div ex application US 2000656646 Div ex patent US 6602457
US 20030209839	A1		H05B-001/00	Div ex application US 2000656646 Div ex patent US 6602457

Abstract (Basic): WO 200120076 A2

NOVELTY - Preparation of **non - woven** fabrics having high dielectric constant, involves mix-spinning polyvinylidene fluoride (PVDF) and polypropylene (PP) to form **fiber**, polarizing the **fiber** to enhance the dielectric constant of the **fiber**, and preparing **non - woven** fabric from the **fiber** having improved dielectric constant.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (i) a high dielectric **non - woven** fabric;
- (ii) an **electrostatic** filter made from the **non - woven** fabric; and
- (iii) a sweeper made from the **non - woven** fabric.

USE - For **electrostatic** filter and sweepers (claimed).

ADVANTAGE - The **non - woven** fabric has high dielectric constant, improved static electricity retention property, and good filtration efficiency of micro-particles and ionic particles. The **non - woven** fabric sustains the functions and properties for long period of time.

pp; 16 DwgNo 0/0

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Composition: 1-20 wt.% of polyvinylidene fluoride and 80-99 wt.% of polypropylene are used.

Preferred Property: The thickness of the **fiber** is 5-20 microns. The density of the **non - woven** fabric is 30-600 g/m2.

Preferred Process: Inorganic antibacterial compounds are added during mix-spinning. The method further includes plasma **treating**, corona discharging or ion beam **treating** the **non - woven** fabric.

Extension Abstract:

EXAMPLE - **Fiber** of thickness 10 microns was obtained by mix-spinning 10 wt.% of polyvinylidene fluoride and 90 wt.% of polypropylene. The **fiber** was polarized by scanning electronic beams to form **fiber** having improved dielectric constant. The **fiber** of improved dielectric constant was manufactured to be high dielectric **non - woven** fabric by needle punching by controlling the density to 250 g/m2. The **non - woven** fabric was filtrated using aerosol method. The efficiency of filtration of **non - woven** fabric was 99.7%. Thus, the obtained **non - woven** fabric had good filtration efficiency against ionic particles and the plasma **treatment** of the fabric provided improved efficiency of filtration. The high-dielectric **non - woven** fabric had good static electricity retention property, filtration efficiency against ionic particles and maintained its function as a filter for long period of time.

Derwent Class: A14; A17; A97; F04; J01; P41

International Patent Class (Main): **B01D-039/02** ; **B01D-039/08** ;
B03C-005/00; B29C-047/00; D01D-005/28; D04H-001/42; D04H-013/00;
D21F-000/00; H05B-001/00

International Patent Class (Additional): **B01D-039/00** ; **B01D-039/14** ;
B01D-039/16 ; B01J-019/08; B03C-003/28; D01F-001/10; D04H-003/02;
D06M-010/00; H01J-037/30; H05B-006/00

16/34/2 (Item 2 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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013823690 **Image available**

WPI Acc No: 2001-307902/200132

Filter for use in air-purifying respirators, comprises first electret filter layer exhibiting non-decreasing removal efficiency, and second electret filter layer exhibiting decreasing removal efficiency

Patent Assignee: 3M INNOVATIVE PROPERTIES CO (MINN)

Inventor: HUBERTY J S

Number of Countries: 096 Number of Patents: 014

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200114042	A1	20010301	WO 2000US19432	A	20000717	200132 B
AU 200063506	A	20010319	AU 200063506	A	20000717	200136
BR 200013360	A	20020430	BR 200013360	A	20000717	200237
			WO 2000US19432	A	20000717	
NO 200200769	A	20020419	WO 2000US19432	A	20000717	200239
			NO 2002769	A	20020215	
EP 1207953	A1	20020529	EP 2000950395	A	20000717	200243
			WO 2000US19432	A	20000717	
KR 2002022814	A	20020327	KR 2002702097	A	20020218	200264
CN 1370091	A	20020918	CN 2000811799	A	20000717	200303
AU 755433	B	20021212	AU 200063506	A	20000717	200305
TW 510814	A	20021121	TW 2000115865	A	20000807	200353
JP 2003524519	W	20030819	WO 2000US19432	A	20000717	200356

			JP 2001518172	A	20000717	
EP 1207953	B1	20030924	EP 2000950395	A	20000717	200363
			WO 2000US19432	A	20000717	
US 6627563	B1	20030930	US 99377262	A	19990819	200367
MX 2002001659	A1	20021101	WO 2000US19432	A	20000717	200376
			MX 20021659	A	20020215	
DE 60005535	E	20031030	DE 605535	A	20000717	200379
			EP 2000950395	A	20000717	
			WO 2000US19432	A	20000717	

Priority Applications (No Type Date): US 99377262 A 19990819

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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WO 200114042 A1 E 39 B01D-039/16

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP
KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT
RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200063506 A B01D-039/16 Based on patent WO 200114042

BR 200013360 A B01D-039/16 Based on patent WO 200114042

NO 200200769 A B01D-000/00

EP 1207953 A1 E B01D-039/16 Based on patent WO 200114042

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

KR 2002022814 A B01D-039/16

CN 1370091 A B01D-039/16

AU 755433 B B01D-039/16 Previous Publ. patent AU 200063506
Based on patent WO 200114042

TW 510814 A B01D-046/42

JP 2003524519 W 45 B01D-039/16 Based on patent WO 200114042

EP 1207953 B1 E B01D-039/16 Based on patent WO 200114042

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI
LU MC NL PT SE

US 6627563 B1 B32B-027/12

MX 2002001659 A1 B01D-039/16 Based on patent WO 200114042

DE 60005535 E B01D-039/16 Based on patent EP 1207953

Based on patent WO 200114042

Abstract (Basic): WO 200114042 A1

NOVELTY - The filter (10) comprises first and second **electret filter** layers (20,30), in which the first layer exhibits non-decreasing removal efficiency and removes the majority of a challenge aerosol, and the second layer exhibits decreasing removal efficiency and has an initial quality factor greater than the first layer.

DETAILED DESCRIPTION - The filter (10) comprises:

(i) a fluid permeable first **electret filter** layer (20) comprising **fibers** that contain a first **polymeric** material, the layer exhibiting non-decreasing removal efficiency at completion of the DOP Penetration/Loading Test and removing the majority of a challenge aerosol collected by the filter during the DOP Penetration/Loading Test; and

(ii) a fluid permeable second **electret filter** layer (30) comprising **fibers** that contain a second **polymeric** material, the layer exhibiting decreasing removal efficiency at completion of the DOP Penetration/Loading Test, and further exhibiting an initial quality

factor that is greater than an initial quality factor of the first **electret filter** layer as determined using the DOP Penetration/Loading Test.

INDEPENDENT CLAIMS are also included for the following:

(I) a respirator comprising the above filter; and
(II) the removal of particulate solid or liquid aerosol from a gas, comprising passing a liquid-aerosol-containing gas through the above filter, such that the gas encounters the first **electret filter** layer before encountering the second **electret filter** layer.

USE - Multi-layer filter exhibiting non-decreasing efficiency when challenged with an oily-mist aerosol, for use in air-purifying respirators.

ADVANTAGE - The oily-mist resistant filter has a non-decreasing removal efficiency in combination with a reduced pressure-drop, and offers improved wearer comfort when used in non-powered air-purifying respirators to provide a very safe breathing environment to the user.

DESCRIPTION OF DRAWING(S) - The figure shows a cross-sectional view of an **electret filter** media.

Electret filter media (10)

First and second **electret filter** layers (20,30)

pp; 39 DwgNo 1/9

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Filter: The fibers comprises melt-blown micro- **fibers** . The first polymeric material comprises polypropylene, and a thermally stimulated discharge current (TSDC) spectrum of the first layer exhibits a peak at ca. 130-140 degrees C.

The first and second polymeric materials comprise at least one **polymer** selected from polypropylene, poly(4-methyl-pentene), linear low density polyethylene, polystyrene, polycarbonate and polyester.

One or both of the filter layers comprise a first oily-mist performance-enhancing additive preferably containing fluorine.

Preferred Properties: The first layer has a TSDC spectrum exhibiting a peak having a width at half height of less than ca. 30 degrees C as measured by TSDC Test Procedure 2. The first layer has a TSDC spectrum exhibiting a peak at ca. 15-25 degrees C below the melting temperature of the first polymeric material, as measured by TSDC Test Procedure 1.

The first layer exhibits increasing charge density over 1-5 minutes of poling time, as measured by TSDC Test Procedure 3.

The first layer collects at least ca. 70% of a challenge aerosol collected by the filter in the DOP Penetration/Loading Test, and the initial quality factor of the second layer is at least 0.5 or greater as determined by the DOP Penetration/Loading Test.

The basis weight of the first layer is greater than the basis weight of the second layer.

The filter exhibits a pressure-drop of ca. 12 H₂O or less when measured according to the Pressure-Drop Test and exhibits a maximum DOP penetration of ca. 5% or less after a total exposure to 200 mg of the challenge aerosol during the DOP Penetration/Loading Test.

The first and second polymeric materials contain a **polymer** that has a volume resistivity of greater than 10 power 14 ohm.cm.

The filter exhibits a non-decreasing removal efficiency at completion of the DOP Penetration/Loading Test.

Preferred **Treatment** : The first layer is quenched and annealed, and the second layer is hydro-charged.

Derwent Class: A88; J01; P35; P73
International Patent Class (Main): B01D-000/00 ; B01D-039/16 ;
B01D-046/42 ; B32B-027/12
International Patent Class (Additional): A62B-023/02 ; B01D-039/14 ;
B32B-005/26; D04H-001/56

16/34/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX
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013638662

WPI Acc No: 2001-122870/200113

A filter media, used in industrial face masks comprises a melt blown electret polymer fiber web containing melt processable fatty acid amide.

Patent Assignee: HOLLINGSWORTH & VOSE CO (HOVO)

Inventor: COX S T

Number of Countries: 093 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200078430	A2	20001228	WO 2000US40201	A	20000615	200113 B
AU 200064038	A	20010109	AU 200064038	A	20000615	200122
EP 1202788	A2	20020508	EP 2000951043	A	20000615	200238
			WO 2000US40201	A	20000615	
JP 2003502141	W	20030121	WO 2000US40201	A	20000615	200308
			JP 2001504485	A	20000615	
EP 1202788	B1	20030312	EP 2000951043	A	20000615	200319
			WO 2000US40201	A	20000615	
DE 60001668	E	20030417	DE 601668	A	20000615	200333
			EP 2000951043	A	20000615	
			WO 2000US40201	A	20000615	

Priority Applications (No Type Date): US 99335002 A 19990617

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 200078430 A2 E 22 B01D-039/00

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY CA CH
CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE
KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO
RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR
IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

AU 200064038 A B01D-039/00 Based on patent WO 200078430

EP 1202788 A2 E B01D-039/00 Based on patent WO 200078430

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
LI LT LU LV MC MK NL PT RO SE SI

JP 2003502141 W 36 B01D-039/14 Based on patent WO 200078430

EP 1202788 B1 E B01D-039/00 Based on patent WO 200078430

Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI
LU MC NL PT SE

DE 60001668 E B01D-039/00 Based on patent EP 1202788
Based on patent WO 200078430

Abstract (Basic): WO 200078430 A2

NOVELTY - A filter media comprises a melt blown electret polymer fiber web containing above 2 to 20 wt.% melt processable fatty acid amide. The electret polymer fiber web has enhanced charge stability.

DETAILED DESCRIPTION - A filter media comprises a melt blown electret polymer fiber web containing above 2 to 20 wt.% melt

processable fatty acid amide. Also claimed are (1) a filter media comprising an annealed melt blown electret **polymer fiber** web containing 1.0- 20 wt.% melt processable fatty acid amide; (2) a respirator having a filter element comprising the melt blown electret **polymer fiber** web or the annealed melt blown electret **polymer fiber** web; (3) manufacture of the **electret filter** media comprising (i) producing a web of melt blown **polymer fibers** from a **polymer** resin incorporating the fatty acid amide; and (ii) **treating** the web to form permanent charge pairs or dipoles in the web; and (4) manufacture of the annealed **electret filter** media comprising steps (i) and (ii) and then (iii) **treating** at elevated temperature to cause annealing.

USE - The filter media is used in industrial face masks.

ADVANTAGE - The electret **polymer fiber** web has enhanced charge stability (claimed). The filter media achieves acceptable alpha values for a range of filtration challenges without significant decay in alpha values over time. The **fiber** web retains particles and/or oil.

pp; 22 DwgNo 0/1

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Media: The electret **polymer fiber** web is polypropylene. The filter media has a filter efficiency and degradation value of at least P95, preferably at least P99, especially at least P100. The concentration of the fatty acid amide is 5-11, preferably 8 %. The fatty acid amide is stearamide and/or ethylene bis-stearamide. The **polymer fibers** have a diameter of 1-20 mu. The weight of the **polymer fiber** web is 10-520 g/m2. Preferred Manufacture: Step (ii) uses AC and/or DC corona discharge. The resultant web is further **treated** at 120-160 (preferably 135-145) degreesC for 1-10 (preferably 2-3) minutes.

Extension Abstract:

EXAMPLE - Polypropylene resin (92 lbs) was melt blended with Acrawax C (RTM: ethylene bis-stearamide) as melt processable fatty acid amide (8 lbs) at 149-285 degreesC for 4 minutes and then extruded to give **fibers**. The **fibers** were cooled to 30-45 degreesC and sprayed onto a collecting roll to form a **nonwoven** web which was 72 inches wide and had a **fiber** diameter of 2.5-5 mu and a weight of 25-35 g/m2. The **nonwoven** web was immediately AC corona discharge **treated** and then DC corona discharge **treated**. The melt blown electret **polymer fiber** web was then annealed. The **fiber** web showed excellent oil resistance.

Derwent Class: A88; J01; P35

International Patent Class (Main): B01D-039/00 ; B01D-039/14

International Patent Class (Additional): A62B-023/02 ; B01D-039/16 ;

D04H-001/42; D04H-003/16; D06M-010/02

16/34/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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012448851 **Image available**

WPI Acc.No: 1999-254959/199921

Electret **filter webs** comprising a **polymer** and a **performance-enhancing additive**

Patent Assignee: MINNESOTA MINING & MFG CO (MINN); 3M INNOVATIVE PROPERTIES CO (MINN)

Inventor: JONES M E; MEI B Z; ROUSSEAU A D

Number of Countries: 081 Number of Patents: 011

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9916533	A1	19990408	WO 98US1457	A	19980202	199921 B
AU 9861348	A	19990423	AU 9861348	A	19980202	199935
US 6068799	A	20000530	US 97941864	A	19971001	200033
EP 1019174	A1	20000719	EP 98906004	A	19980202	200036
			WO 98US1457	A	19980202	
BR 9812593	A	20000801	BR 9812593	A	19980202	200043
			WO 98US1457	A	19980202	
CZ 200001180	A3	20000913	WO 98US1457	A	19980202	200054
			CZ 20001180	A	19980202	
CN 1272803	A	20001108	CN 98809737	A	19980202	200114
KR 2001024376	A	20010326	KR 2000703518	A	20000331	200161
AU 739986	B	20011025	AU 9861348	A	19980202	200173
MX 2000003230	A1	20011201	MX 20003230	A	20000331	200282
JP 2003522300	W	20030722	WO 98US1457	A	19980202	200350
			JP 2000513659	A	19980202	

Priority Applications (No Type Date): US 97941864 A 19971001

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

WO 9916533 A1 E 59 B01D-039/08

Designated States (National): AL AM AT AU AZ BA BB BG BR BY CA CH CN CU
CZ DE DK EE ES FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM
TR TT UA UG UZ VN YU ZW

Designated States (Regional): AT BE CH DE DK EA ES FI FR GB GH GM GR IE
IT KE LS LU MC MW NL OA PT SD SE SZ UG ZW

AU 9861348 A Based on patent WO 9916533

US 6068799 A B29C-035/16

EP 1019174 A1 E B01D-039/08 Based on patent WO 9916533

Designated States (Regional): DE ES FR GB IT NL

BR 9812593 A B01D-039/08 Based on patent WO 9916533

CZ 200001180 A3 B01D-039/08 Based on patent WO 9916533

CN 1272803 A B01D-039/08

KR 2001024376 A B01D-039/08

AU 739986 B B01D-039/08 Previous Publ. patent AU 9861348

Based on patent WO 9916533

MX 2000003230 A1 B01D-039/08

JP 2003522300 W 67 D06M-010/00 Based on patent WO 9916533

Abstract (Basic): WO 9916533 A1

NOVELTY - A method of making an electret article comprises (a) forming a heated, molten blend of a **polymer** and a performance-enhancing additive; (b) shaping the melt; (c) quenching the shaped material; and (d) annealing and charging the quenched material to form an electret.

USE - For making an electret comprising a **nonwoven** web containing melt-blown **fibers** (claimed) used as a filter for removing particles from a gas, especially aerosols from air, e.g. in respirators such as face masks, home and industrial air conditioners, furnaces, air cleaners, vacuum cleaners, medical and air line filters and air cleaning systems in vehicles and electronic equipment, e.g. computers and disk drives.

ADVANTAGE - The additives provide **electret filters** with superior oily mist loading performance, charge stability in the presence of liquid aerosols, decreased penetration of aerosols or particulates and a small pressure drop across the filter.

DESCRIPTION OF DRAWING(S) - The figure shows DOP loading performance (minimum challenge, mg) versus unannealed crystallinity index for a polypropylene **nonwoven** filter web.

pp; 59 DwgNo 2/17

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Method: The melt is shaped by extrusion through a die to form an extrudate, which is quenched as it emerges from the die. The melt may be extruded under melt-blowing conditions. The product is quenched **fibers**, which may be collected as a **nonwoven** web. The blend comprises 95-99.5 wt.% polypropylene and 0.5-5 wt.% of a fluorochemical additive. Before annealing, quenched **fibers** have a crystallinity index of less than 0.3. Annealing is performed at 130-150degreesC and the blend is extruded at 0.5-1.4 pound/hour/inch of die. The web is charged by corona **treatment** and annealing is performed after charging. The electret has a thermally stimulated discharge current (TSDC) spectrum that shows a peak of width at half peak height of less than 25degreesC, as measured by TSDC test procedure 3.

ORGANIC CHEMISTRY - Preferred Additive: The additive is a fluorochemical. Preferred are (I)-(III), i.e. additives A, B and C described in U.S. Pat. No. 5,411,576: The fluorochemical has a melting point above polypropylene and below the extrusion temperature

Extension Abstract:

SPECIFIC COMPOUNDS - The **polymer** is polypropylene (preferred), poly(4-methyl-1-pentene, linear low density polyethylene, polystyrene, polycarbonate, polyester or a mixture.

EXAMPLE - A **nonwoven** filter web was prepared by extruding Escorene 3055G (RTM: polypropylene) containing 1.1 wt.% (I) at 50 pounds/hour under melt-blowing conditions with a melt temperature of 288degreesC and a 48 inch drilled orifice die. The extrudate was quenched using a spray bar with 13 flat fan nozzles spaced 4 inches apart and mounted 0.75 inch from the die face and 2.5 inches below the molten **polymer** streams. Each nozzle was rotated 10degrees from the cross web direction so that the fans of water did not interfere with each other and the water pressure was set at the minimum level that would maintain a uniform spray. The web was annealed in an oven at 150degreesC with a dwell time of 4.5 minutes then corona **treated** using a high-voltage electrical field with a corona current of 2.6 x 10-3 mA / cm of corona source length and a residence time of 15 seconds. The web had a basis weight of 71 g / m2, a thickness of 1.3 mm and a pressure drop of 6.6 mm water at a face velocity of 13.8 cm / second. Weighed pairs of discs cut from the web, stacked on on top of the other, were mounted in a holder and a 6.0 inch circle was exposed to a dioctyl phthalate (DOP) aerosol at a face velocity of 7.77 cm / second. The tests were continued until there was a clear trend for DOP penetration or until an exposure to 200 mg of DOP. The pair of discs was then weighed again and a minimum at challenge value was calculated, i.e. the total mass of DOP incident on and through the sample at the point where the DOP percent penetration reached its minimum value (higher value=better DOP loading performance). The crystallinity index of the polypropylene was determined for samples cut from 6 positions across the web after annealing and for samples cut from positions 1, 4 and 6 before annealing. The figure shows a plot of the minimum challenge values (mg) versus unannealed crystallinity index for positions 1, 4 and 6, demonstrating that the lower the crystallinity index of the web before annealing, the greater the minimum at challenge

value. The crystallinity index of the web in the 6 positions after annealing was 0.57, 0.53, 0.52, 0.59, 0.51 and 0.47 respectively and the minimum challenge values were 149, 83, 78, 83, 150 and 340 respectively, showing that there is no correlation between the crystallinity index of the annealed web and DOP loading performance.
Derwent Class: A17; A23; A32; A35; A85; A88; E13; F01; F02; F04; F06; F08; J01
International Patent Class (Main): B01D-039/08 ; B29C-035/16; D06M-010/00
International Patent Class (Additional): B01D-039/14 ; B01D-039/16 ; D01F-001/10; D04H-001/42; D04H-003/16

16/34/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
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010469258 **Image available**
WPI Acc No: 1995-370577/199548
Electret filter with high trapping efficiency - has electret film split fibre and heat-melting fibre assembled and heated to form web
Patent Assignee: TOYOBO KK (TOYM)
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
JP 7251015 A 19951003 JP 9445818 A 19940316 199548 B
Priority Applications (No Type Date): JP 9445818 A 19940316
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
JP 7251015 A 7 B01D-039/16
Abstract (Basic): JP 7251015 A
Electret film split fibre contg. charged polymer film and heat-melting fibre contg. heat-melting polymer without charge coated with 0.01-5% oil agent are assembled and thermally treated to form web for electret filter .
ADVANTAGE - Electret filter with high trapping efficiency and without pressure loss is obtd. by the method.
Dwg.1/2
Derwent Class: A88; J01; X25
International Patent Class (Main): B01D-039/16
International Patent Class (Additional): B01D-039/14

16/34/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2004 Thomson Derwent. All rts. reserv.
010022414 **Image available**
WPI Acc No: 1994-290127/199436
Electret filter for clean room, air conditioner, floppy disk drive unit etc. - comprises air permeable conductive member on surface(s) of nonwoven fabric coated with silicone- or fluorine-based resin
Patent Assignee: SHINSEI DENSHI KOGYO KK (SHIN-N)
Number of Countries: 001 Number of Patents: 001
Patent Family:
Patent No Kind Date Applicat No Kind Date Week
JP 6218211 A 19940809 JP 9381488 A 19930315 199436 B
Priority Applications (No Type Date): JP 92350343 A 19921203
Patent Details:
Patent No Kind Lan Pg Main IPC Filing Notes
JP 6218211 A 5 B01D-039/14

Abstract (Basic): JP 6218211 A

A **nonwoven** fabric is **coated** with resin layer selected from silicone-based resin, and fluorine-based resin. Alternatively, a silicone-based, resin- **coated nonwoven** fabric superimposed on a fluorine-based, resin- **coated nonwoven** fabric. A conductive member having air permeability is provided on at least the surface of the **nonwoven** fabric.

Pref. the **nonwoven** fabric comprises a high **polymer fibre**. The high **polymer fibre** comprises PP, PE, PET, PVC, PVDC, polyamide, or polyurethane.

USE/ADVANTAGE - The **electret filter** is used for a clean room, air conditioner, floppy disc drive unit, mat for entrance (precision electronic part mfg. room), or wall-hanging dust collector. Filter has high electrification, prolonged life, and low **nonwoven** fabric wt. per area to reduce pressure loss, and provides improved water resistance. This results in improved dust collection, and low passing resistance. filter is washed and is subsequently used, and reduces lost surface charge.

Dwg.0/0

Derwent Class: A14; A26; A85; J01; P41

International Patent Class (Main): **B01D-039/14**

International Patent Class (Additional): B03C-003/28

16/34/7 (Item 7 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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009654123 **Image available**

WPI Acc No: 1993-347673/199344

Forming electret used for electret filter having good surface charge maintaining power - by contacting material pref. polymer film, with insulating material pref. polymer film using pressing and transfer roll

Patent Assignee: MITSUI PETROCHEM IND CO LTD (MITC)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 5253417	A	19931005	JP 9255222	A	19920313	199344 B

Priority Applications (No Type Date): JP 9255222 A 19920313

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 5253417	A		9 B01D-039/14	

Abstract (Basic): JP 5253417 A

Method for forming electret comprises contacting (A) a material to be formed into electret with (B) a insulating material formed into an electret to form (A) into an electret material. Material (A) is pref. a **polymer** film esp. pref. a **fibre** prepared by slitting (A) a **polymer** film. Material (B) is pref. an insulating **polymer** film. An apparatus for forming (A) material into electret comprises (R1) a pressing roll, (R2) a transfer roll looped with (B) insulating material around the edge of (R2) roll provided on the opposite side of (R1) roll, (D) a device for applying a direct current voltage onto (B). The appts. is operated by rotating rolls of (R1) and (R2), introducing (A) material to press and contact (A) with (B) continuously, to form (A) material into an electret.

Material (B) is pref. **polymer** film of e.g. fluorine-containing resin, polypropylene, PET, polyimide, etc.: of which thickness is pref. 15-50 micron. Material (A) is not limited, most pref. polypropylene.

Amt. of charge on (B) insulant is pref. 20x10 pwer(-9)-50x10pwer(-9)
C/m2. (R1)pressing roll is pref. of rubber, e.g. NBR mixed with
carbon-black, and **coated** with a metal foil.

USE/ADVANTAGE - The electret material is used for an **electret filter** having good surface charge maintaining power, dust collecting function and long life, e.g. air cleaning filter, room cleaner, air conditioner, mask, etc. It can be produced in a high yield.

Dwg.1/5

Derwent Class: A85; L03; V01; X27
International Patent Class (Main): **B01D-039/14**
International Patent Class (Additional): H01G-007/02

16/34/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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009654122 **Image available**

WPI Acc No: 1993-347672/199344

Prepn. of electret filter - by piling polymeric film on to polymeric fibrous material and applying electric voltage to the components

Patent Assignee: MITSUI PETROCHEM IND CO LTD (MITC)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 5253416	A	19931005	JP 9255221	A	19920313	199344 B

Priority Applications (No Type Date): JP 9255221 A 19920313

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 5253416	A		8	B01D-039/14	

Abstract (Basic): JP 5253416 A

An **electret filter** (F) is prepared by piling (B) polymeric film onto at least one surface of face or back or back of (A) polymeric **fibrous** material of a **polymer**, applying an electric voltage of direct current onto (A) while applying voltage of opposite polarity to that of (A) onto (B) film to **treat** charging on (A) material and moulding (A) material to form (F) **electret filter**.

(A) **fibrous** material is pref. a plate of aggregate of **fibres** prepared by slitting film of a **polymer**. Applying reverse voltage onto (B) film is pref. not carried out at the portion piled with (A) material. (B) film has pref. percentage voids of less than 50%.

(A) **fibrous** material is pref. non-polar **polymer**, e.g. polyethylene, polypropylene, polystyrene, etc.; polar **polymer**, e.g. polytetrafluoro-ethylene, polyethylene-terephthalate, nylon-6, etc.; or mixture thereof. The non-polar **polymer** in (A) material can be grafted with most pref. acrylic-acid, maleic-acid, etc. (B) film is e.g. fluorine-containing resin film, e.g. "Neokuron NF-0025" (RTM) available from Daikin Kogyo KK of thickness of 25 micron. Voltage applied onto (A) and (B) is pref. 5-15 kV with distance of electrodes of 5-15mm. Thickness of (B) film is pref. 5-50 micron. Thickness of the film for forming **fibre** of (A) is pref. 10-100 micron.

USE/ADVANTAGE - An **electret filter** having a superior dust collecting function, used for air cleaning, room cleaner, air conditioner, mask, etc. can be produced in a high yield.

Dwg.1/3

Derwent Class: A85; J01; V01; X27
International Patent Class (Main): **B01D-039/14**
International Patent Class (Additional): H01G-007/02

16/7/9 (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO
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07766410

ELECTRET FILTER MEDIUM AND METHOD FOR MANUFACTURING THE SAME
PUB. NO.: 2003-260319 [JP 2003260319 A]
PUBLISHED: September 16, 2003 (20030916)
INVENTOR(s): TOKUDA SEIJI
APPLICANT(s): TOYOBO CO LTD
APPL. NO.: 2002-063925 [JP 200263925]
FILED: March 08, 2002 (20020308)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an **electret filter** medium which is high in surface charge density, is therefore high in capture efficiency and enables a biodegradation **treatment** and a method for manufacturing the same.

SOLUTION: The **electret filter** medium having the surface charge density of $\geq 1.2 \times 10^{-9}$ C/cm² is obtained by impressing a DC corona electric field to a **nonwoven** fabric consisting of **fibers** composed of a lactic acid **polymer** as an essential component in the state of heating the **nonwoven** fabric to 60 to 140°C, then cooling the **nonwoven** fabric down to $\leq 40^\circ\text{C}$ in the state of impressing the electric field thereto.

The **electret filter** medium comprises a **nonwoven** fabric of **fibers** composed of the lactic acid **polymer** as the essential component, more preferably a melt flow **nonwoven** fabric. The lactic acid for preparing the lactic acid **polymer** may be any among the D body alone, the L body alone or a mixture composed of the D body and the L body and its optical purity is preferably $\geq 85\%$.

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16/7/10 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO
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07766409

ELECTRET FILTER MEDIUM AND METHOD FOR MANUFACTURING THE SAME
PUB. NO.: 2003-260318 [JP 2003260318 A]
PUBLISHED: September 16, 2003 (20030916)
INVENTOR(s): TOKUDA SEIJI
APPLICANT(s): TOYOBO CO LTD
APPL. NO.: 2002-063923 [JP 200263923]
FILED: March 08, 2002 (20020308)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an **electret filter** medium having high capture efficiency in spite of the low pressure drop that cannot be achieved by the conventional **electret filter** media and a method for manufacturing the same.

SOLUTION: The **electret filter** medium is obtained by subjecting a melt flow **nonwoven** fabric, which is prepared by subjecting a lactic acid **polymer** to a high-pressure fluid spray **treatment**, is ≤ 2.0 in the **fiber** dispersibility (Dfp/Dfs) expressed by the ratio of the diameter Dfp equivalent to the pressure drop and the mean **fiber** diameter determined by an electron microscopic observation and ≥ 2.5 in the QF value calculated from 0.3 micron particle transmittance and pressure drop at an air filtration rate 2.5 cm/sec, to a corona charge.

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16/7/11 (Item 3 from file: 347)
DIALOG(R) File 347:JAPIO
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07766408

ELECTRET FILTER MEDIUM AND METHOD FOR MANUFACTURING THE SAME
PUB. NO.: 2003-260317 [JP 2003260317 A]
PUBLISHED: September 16, 2003 (20030916)
INVENTOR(s): TOKUDA SEIJI
APPLICANT(s): TOYOBO CO LTD
APPL. NO.: 2002-063924 [JP 200263924]
FILED: March 08, 2002 (20020308)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an **electret filter** medium which is high in surface charge density and is high in particle capture efficiency even after exposure to initial and high-temperature atmospheres and enables biodegradation **treatment** and a method for manufacturing the same.

SOLUTION: The **electret filter** medium having the surface charge density of $\geq 1.2 \times 10^{-9}$ C/cm² is obtained by impressing a DC corona electric field to a **nonwoven** fabric consisting of **fibers** composed of a lactic acid **polymer** prepared by compounding a crystal nucleus agent at 0.01 to 0.3 parts by weight with 100 parts by weight the lactic acid **polymer** as an essential component, in the state of heating the **nonwoven** fabric to 60 to 140°C, then cooling the **nonwoven** fabric down to $\leq 40^\circ\text{C}$ in the state of impressing the electric field thereto.

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16/7/12 (Item 4 from file: 347)
DIALOG(R) File 347:JAPIO
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07726409

ELECTRET FILTER MEDIUM AND METHOD FOR PRODUCING THE SAME
PUB. NO.: 2003-220310 [JP 2003220310 A]
PUBLISHED: August 05, 2003 (20030805)
INVENTOR(s): TOKUDA SEIJI
MASUMORI TADAO
APPLICANT(s): TOYOBO CO LTD
APPL. NO.: 2002-020418 [JP 200220418]
FILED: January 29, 2002 (20020129)

ABSTRACT

PROBLEM TO BE SOLVED: To provide an **electret filter** medium having an high collecting efficiency with a low pressure-loss which has not been achieved by conventional **electret filter** mediums and a method for producing the same.

SOLUTION: A melt blown **nonwoven** fabric is obtained by corona charging which is a **polymer** subjected to spraying **treatment** with a high pressure fluid, of which a **fiber** dispersibility (Dfp/Dfs) represented by the ratio of a diameter corresponding to pressure loss Dfp to an average **fiber** diameter Dfs determined by electron microscopy is 2.0 or less, and of which a QF value is 2.5 which is calculated by a permeability of particles of 0.3 μm and a pressure loss at an air filtering rate of 2.5 cm/sec.

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16/7/13 (Item 5 from file: 347)
DIALOG(R) File 347:JAPIO
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05670908 **Image available**
ELECTRET FILTER AND PRODUCTION OF PLEATED ELECTRET FILTER
PUB. NO.: 09-285708 [JP 9285708 A]
PUBLISHED: November 04, 1997 (19971104)
INVENTOR(s): NAGATSUKA KOJIRO
APPLICANT(s): OSHIDARI KENKYUSHO KK [491522] (A Japanese Company or
Corporation), JP (Japan)
APPL. NO.: 08-123958 [JP 96123958]
FILED: April 23, 1996 (19960423)

ABSTRACT

PROBLEM TO BE SOLVED: To obtain an **electret** filter which is free from entanglement by pleating and allows the efficient execution of pleating by combining thin layers made of materials which are not electreted to one or both surfaces of an **electret filter** material by Coulomb force.
SOLUTION: The **electret filter** medium 1 made of stock subjected to an electretting **treatment**, such as **non - woven** fabric formed by using **fibers** subjected to the electretting **treatment**, is used. The thin layers consisting of the materials which are not electreted, such as **non - woven** fabrics formed by using the non- electreted **fibers**, i.e., the non-electreted thin layers 2, are combined by the Coulomb force on one or both surfaces of the **electret filter** medium 1. The **electret filter** obtained in such a manner does not entangle with feed teeth, etc., and does not require the interruption of work at the time of pleating with a pleating machine, thereby contributing to an increase in a working speed. The filter is not fixed as the Coulomb force is utilized and, therefore, the pleating is smoothly executed.

16/7/18 (Item 10 from file: 347)

DIALOG(R)File 347:JAPIO

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04261715 **Image available**

PRODUCTION OF ELECTRET FILTER

PUB. NO.: 05-253415 [JP 5253415 A]
PUBLISHED: October 05, 1993 (19931005)
INVENTOR(s): YOKOYAMA AKIRA
 MATSUURA SATOSHI
 SHINAGAWA YOSHIO
APPLICANT(s): MITSUI PETROCHEM IND LTD [000588] (A Japanese Company or
Corporation), JP (Japan)
APPL. NO.: 04-055220 [JP 9255220]
FILED: March 13, 1992 (19920313)

ABSTRACT

PURPOSE: To produce an **electret filter** having excellent in collecting efficiency at high yield.
CONSTITUTION: A production method for the **electret filter** has processes to form a planer fibrillated **fiber** bundled body 1 by fibrillating a **polymer** film (A), to charge **treating** the fibrillated **fiber** bundled body on at least one of the upper or the rear face of which a **polymer** film (B) 4 is superposed and to form the **electret filter** 28 from the charge **treated** fibrillated **fiber**.

17/26, TI/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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007601901

WPI Acc No: 1988-235833/198834

Temp.-stable textile material pref. based on inorganic fibre - is
impregnated with suspension contg. mainly polyvinylidene chloride
copolymer , graphite and/or other mineral fillers

17/26, TI/6 (Item 6 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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000604856
WPI Acc No: 1968-37327Q/196800
Coating composition containing polybutene and

17/34/1 (Item 1 from file: 350)
DIALOG(R) File 350:Derwent WPIX
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016199203 **Image available**
WPI Acc No: 2004-357089/200433

Eyewear used to protect eyes from dust, dirt, and wind drying, includes
frame, lenses on the frame, and filter disposed between the lenses and
user's face

Patent Assignee: ENERGY RELATED DEVICES INC (ENER-N)
Inventor: DEJOHN M D; HOCKADAY R G; NAVAS C J; TURNER P S; VAZ H L
Number of Countries: 105 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200434127	A2	20040422	WO 2003US31754	A	20031007	200433 B

Priority Applications (No Type Date): US 2002416271 P 20021007

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 200434127	A2 E	26	G02C-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA
CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL
IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI
NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG
UZ VC VN YU ZA ZM ZW

Designated States (Regional): AT BE BG CH CY CZ DE DK EA EE ES FI FR GB
GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ
UG ZM ZW

Abstract (Basic): WO 200434127 A2

NOVELTY - An eyewear comprises a frame, lenses (56) on the frame,
and a filter (51, 59, 60) disposed between the lenses and a user's face
for filtering air in an air volume in the eyewear.

USE - The invention is used to protect the eyes from dust, dirt,
and wind drying.

ADVANTAGE - The invention is dust-free and non-fogging.

DESCRIPTION OF DRAWING(S) - The figure shows a layered filter
exploded view of the invention.

Filter (51, 59, 60)

Lenses (56)

Slot (67)

pp; 26 DwgNo 5/6

Technology Focus:

TECHNOLOGY FOCUS - MECHANICAL ENGINEERING - Preferred Component:
The filter is an **electrostatic filter**. The filter enables heat
transfer for transferring heat to an airflow from thermal heat of the
wearer's face. The filter comprises screens, wires, **fibers**, and/or
open cell foams. A channel is disposed adjacent to the filter. The

channel comprises baffles, fins, honeycombs, and/or molded parts. The **electrostatic filter** comprises baffles, fins, parallel planes, sheets, tube bundles, corrugated sheets, honeycombs, molded parts, corona discharge points, charged plates, and/or charged wires. The **electrostatic filter** is an electret. Heat transfer enhancers are disposed adjacent to the filters. The enhancers comprise surface **coatings**, fillers, tapers, fins, convolutions, grooves, and/or bumps. An insert is provided for receiving the filter. The insert comprises non- **electrostatic filters**, screens, wires, **fibers**, open cell foams, baffles, and/or honeycombs. A module is replaceable and removably disposed on the frame. The lenses comprise interior-facing portions and exterior-facing portions. The exterior comprises voids, bubbles, and/or gas bubbles.

POLYMERS - Preferred Material: The electret comprises plastic, polypropylene, polycarbonate, FEP TEFLON, polyvinylidene fluoride, and/or polyvinylidene difluoride. The module is made of molded plastic, and/or rubber.

INORGANIC CHEMISTRY - Preferred Material: The enhancers comprise alumina, silica, magnesia, titania, magnesium, graphite, high emissivity **coatings**, and/or carbon black **coatings**. The module is made of metal. The bubbles comprise air, argon, nitrogen, and/or silicon hexafluoride.

CERAMICS AND GLASS - Preferred Material: The bubbles may comprise glass micro-balloons

Derwent Class: A89; P81

International Patent Class (Main): G02C-000/00

17/34/2 (Item 2 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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015404108

WPI Acc No: 2003-466248/200344

Treatment of air filter involves applying water-soluble dielectric liquid formulation onto air filter

Patent Assignee: MAINSTREAM ENG CORP (MAIN-N)

Inventor: MEYER J A; SCARINGE R P

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030032694	A1	20030213	US 2001922785	A	20010807	200344 B

Priority Applications (No Type Date): US 2001922785 A 20010807

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030032694	A1		5	C08K-003/00	

Abstract (Basic): US 20030032694 A1

NOVELTY - An air filter is **treated** by applying a water-soluble dielectric liquid formulation onto the air filter.

USE - For **treating** an air filter.

ADVANTAGE - The inventive method using the water-soluble dielectric liquid formulation provides an improved performance. It provides a passive low-cost **electrostatic filter** from an ordinary low-cost non-electrostatic disposable filter. It further adds particulate retention capability and biocidal disinfection capability.

pp; 5 DwgNo 0/0

Technology Focus:

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Component: The

liquid formulation is non-flammable and non-combustible. It further includes a dielectric biocide material, or non-ionic biocide. It is a non-ionic surfactant dissolved in a non-flammable, non-combustible solvent (e.g. deionized water) that leaves no conducting residue on the filter.

POLYMERS - Preferred Component: The non-ionic surfactant is an alkylphenol-hydroxypolyoxyethylene **polymer**, preferably alkylphenol-hydroxy (oxyethylene)35, 45 or 100. The liquid formulation is mono or polyhydric alcohols, mono or polyethers, or mono or polyketone compounds. The polyhydric alcohol is propylene glycol or glycerin dissolved in a nonflammable solvent that leaves no conducting residue on the filter. The non-ionic biocide is polychlorophenoxyphenol, preferably 3-(4-chlorophenyl)-1-(3,4-dichlorophenyl)urea or 2,4,4'-trichloro-2'-hydroxydiphenyl.

Extension Abstract:

EXAMPLE - Alkylphenol-hydroxy(oxyethylene)100 surfactant (15) and deionized water (85%) were mixed and sprayed onto both sides of 1/6th panel on a 16x25 standard coarse fiber heating, ventilating and/or air conditioning (HVAC) filter. The filter was placed in an air handling system for 39 days and rotated weekly to prevent biased non-uniform air flow. On day 40, the filter was removed and pieces from each of the test squares were cut out, measured and soaked in isopropanol to extract the dust. After, a tared filter was used to filter the dust from the isopropanol and weighed after once drying was complete. The results showed 0.002239 g of dust captured/cm2 of filter surface that was withheld compared to a control present on the same filter that entrained 0.000504 g of dust captured/cm2. This represented a 344% increase in dust retention.

Derwent Class: A97; D22; J01

International Patent Class (Main): C08K-003/00

17/34/3 (Item 3 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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012523310

WPI Acc No: 1999-329416/199928

Fibers, electret fibers and textiles treated with volatile
antistatic formulation

Patent Assignee: HOECHST TREVIRA GMBH & CO KG (FARH)

Inventor: DAHRINGER J; VISCHER A

Number of Countries: 026 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 922794	A2	19990616	EP 98123415	A	19981209	199928 B
DE 19755047	A1	19990617	DE 1055047	A	19971211	199930
US 6235663	B1	20010522	US 98210299	A	19981211	200130

Priority Applications (No Type Date): DE 1055047 A 19971211

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 922794	A2	G	10	D01F-001/10	
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Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

DE 19755047	A1	D04H-001/42
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US 6235663	B1	D04H-001/00
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Abstract (Basic): EP 922794 A2

NOVELTY - In sized **fibers** , preferably electret **fibers** , based on a **fiber** -forming **polymer** or polycondensate, not less than 80 wt.% of the size formulation volatilizes after 20 minutes at a temperature no greater than 250degreesC, preferably no greater than 230degreesC.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(a) **fibers** , preferably electret **fibers** , sized with a formulation based on an amine oxide; (b) textile containing these **fibers** ; (c) the production of the **fibers** ; and (d) the production of the textile.

USE - The **fibers** are used in textiles; and the textile is used as filter, especially fine dust filter (all claimed).

ADVANTAGE - **Fibers** , including electret **fibers** , must be **treated** with antistatic formulations to prevent static charging during **fiber** production, and especially textile production, but electrostatically **charged filters** are more effective than uncharged filters. Many existing antistatic sizes can only be removed by washing, which damages the fleece, whilst others vulcanize and cannot be removed without damaging the **fibers** . The present, easily removed formulations avoid these drawbacks. They ensure satisfactory properties during **fiber** production and give better filters.

pp; 10 DwgNo 0/0

Technology Focus:

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Formulation: The size formulation contains not less than 80 wt.% amine oxide of formula (I);

R1R2R3NO (I)

R1=hydrogen (H), optionally substituted 1-30 carbon (C) alkyl, alkenyl or aryl, more preferably optionally substituted 8-20 C alkyl or alkenyl, especially unsubstituted 1-20 alkyl, most especially coco fatty alkyl;

R2, R3=H, optionally substituted 1-10 C alkyl, alkenyl or aryl, more preferably optionally substituted 1-4 C alkyl or alkenyl, especially unsubstituted 1-4 C alkyl, most especially methyl.

(all claimed).

Preferred Formulation: In both cases, the size formulation contains 10-80 parts weight (I) and 90-20 parts weight aqueous solvent. It is applied in amounts of 0.02-1%, especially 0.1-0.4 wt.% active substance with respect to the **fiber** -forming material.

TEXTILES AND PAPER - Preferred **Fibers** : The **fibers** may be bi- or multi-components **fibers** , preferably core-shell **fibers** , or mono-component **fibers** . The **fiber** -forming material(s) may contain organic or organometallic charge control agents. Examples of **polymers** and polycondensates are polyolefins, halogenated polyolefins, polyacrylates, polyacrylonitrile, polystyrene, fluoro- **polymers** , polyesters, polycarbonates, aliphatic and aromatic polyamides, polyimides, polyether-ketones (e.g. PEK and PEEK), polyarylene sulfides, especially polyphenylene sulfide, polyacetals or cellulose esters.

Preferred Textile: The textile contains melt-bonding **fibers** and optionally other filler **fibers** , preferably 20-90 wt.% fibber **fibers** and 80-20 wt.% bicomponent **fibers** . It is consolidated thermally at not less than 100, preferably 100-200degreesC and contains no greater than 1, preferably 0.01-0.05 wt.% (I). The textile is a fleece, preferably a carded or crimped fleece.

Preferred Production Method: The **fibers** are produced by spinning a **fiber** -forming **polymer** or polycondensate charge, converting it to a **fiber** and applying the size formulation. The textile is produced by

making these **fibers** into a textile, especially a crimped or carded fleece, and thermal **treatment** to reduce the fraction of the active substance by at least 80% by thermal decomposition.

Extension Abstract:

EXAMPLE - Polyethylene terephthalate was modified by mixing with 1.0 wt.% of the charge control agent C.I. Solvent Blue 124 (described in EO-A-705931, formula 16), in the form of a master batch. It was then spun (280degreesC, 1500 m/minute) to **fibers**. After spinning and before and after drawing, the **fibers** were sized with Genaminox CS (RTM; aqueous solution containing 30% coco alkyl-dimethylamine oxide). This had a dynamic viscosity less than 10 mPa.s at 20degreesC (DIN 53015), thermal decomposition temperature of over 100degreesC; density of 0.97 g/cm3 at 20degreesC (DIN 51757) and pH of 7-8 and was 96.8 wt.% volatile after 20 minutes at 220degreesC. The size was diluted with water so that the **fibers** contains 0.15 wt.% amine oxide. The **fibers** were then crimped, fixed and cut to staple **fibers** with a length of 38 mm and titer of 1.3 dtex.

Derwent Class: A60; A85; A88; E14; E16; E19; E36; F01; F04; F06; F07; J01
International Patent Class (Main): D01F-001/10; D04H-001/00; D04H-001/42
International Patent Class (Additional): D01F-001/09; D04H-001/54

17/34/6 (Item 6 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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000604856

WPI Acc No: 1968-37327Q/196800

Coating **composition containing polybutene and**

Patent Assignee: HARRINGTON FREDERICK G (HRRI)

Number of Countries: 003 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 1911754	B					196800 B
GB 1206562	A					197037
CA 889364	A					197202

Priority Applications (No Type Date): US 68711484 A 19680308

Abstract (Basic): DE 1911754 B

Coating composition contains: (1) a mixture of chlorinated, inert, non-drying, non- **polymerisable** liquid hydrocarbons containing 40-74 wt. % Cl with a flow-point >-30 deg.C. and (2) up to 20 vol. % (esp. 5%) (on total composition) of a synthetic, long-chained hydrocarbon **polymer** of linear and branched butene molecules with terminal unsaturation and average mol. wt. (no. average) 900-3000.

The chlorinated hydrocarbon imparts adhesiveness and fire-resistance, as well as improved flowability round particles adhering to the **coating**.

Coatings for glass **fibre** filter or **electrostatic** filters .

Derwent Class: A00

19/34/1 (Item 1 from file: 350)

DIALOG(R) File 350:Derwent WPIX

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010553393 **Image available**

WPI Acc No: 1996-050346/199606

Electret based, industrial electrostatic filter esp. for capturing finely dispersed dust and sulphur dioxide - can be easily cleaned, and economically constructed from plastic materials with low capital and running costs

Patent Assignee: KINTERAYA G (KINT-I); TEVZADZE G (TEVZ-I); TEVZADZE S (TEVZ-I)

Inventor: KINTERAYA G; TEVZADZE G; TEVZADZE S

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4421859	A1	19960104	DE 4421859	A	19940622	199606 B
DE 4421859	C2	19960704	DE 4421859	A	19940622	199631

Priority Applications (No Type Date): DE 4421859 A 19940622

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4421859	A1		7	B03C-003/28	
DE 4421859	C2		8	B03C-003/28	

Abstract (Basic): DE 4421859 A

Filter (1) for cleaning gases, esp. to capture finely dispersed dust and/or SO₂, has an electret (2). The filter is novel in that the electret (2) is at least partly surrounded by layers of porous dielectric (3) with some clearance.

Also claimed are: (i) a process for mfg. the above filter comprising producing the electret by heat **treatment** of a **polymer**; (ii) a process for repolarising of a depolarised electret comprising repolarising the electret by heat treatment; and (iii) a process for reprocessing a filter in which the filter is depolarised and then repolarised as in (ii).

USE - An **electrostatic filter** for cleaning gases esp. to remove finely dispersed dusts and/or SO₂.

ADVANTAGE - The **electret filter** is low in capital and operating costs, and is cleaned economically. No permanent high voltage source is required, and long, trouble free use is assured, esp. in the cleaning of highly dispersed dust and/or where SO₂ is present. Metal electrodes may be dispensed with. The porous dielectric layers used with the electret are easily removed for cleaning; a low cost method. Microdispersions are effectively cleaned. Larger surface area filters are economically constructed from corrosion-free materials. Higher potential gradients are possible, and multilayer filters may be produced economically by industrial methods.

Dwg.2/3

Derwent Class: A14; A88; J01; P41; X25

International Patent Class (Main): B03C-003/28

File 348:EUROPEAN PATENTS 1978-2004/May W04

File 349:PCT FULLTEXT 1979-2002/UB=20040527,UT=20040520

Set	Items	Description
S1	260285	FIBER? ? OR FIBRE? ? OR FIBROUS OR NONWOVEN OR NON()WOVEN
S2	372965	COAT????
S3	962	(ELECTRET OR CHARGED OR STATIC()ELECTRIC??()CHARGE?? OR POLARI?ED OR IONI?ED OR INDUCTIVE OR ELECTROSTATIC)() (FILTER? ? OR MICROFIBRE? ? OR MICROFIBER? ?)
S4	160917	LIQUID()CONDENSED()MONOMER? ? OR ALKYLENE OR ACRYLATE OR METHACRYLATE
S5	2964	(OLEOPHOBIC OR HYDROPHOBIC OR HALOGENATED OR FLUORINATED) (-)MONOMER? ?
S6	29758	HEXAFLUOROPROPYLENE OR FLUOROPOLYMER? ? OR POLYTETRAFLUOROETHYLENE OR FLUORINATED() (ETHYLENEPROPYLENE OR ETHYLENE()PROPYLENE)
S7	379951	MONOMER? ? OR POLYMER? ?
S8	146595	VAPOR? OR VAPOUR?
S9	512779	TREAT OR TREATS OR TREATED OR TREATING OR TREATMENT? ?
S10	44515	IC=(A62B OR B01D)
S11	42	S1(S)S3(S) (S2 OR S9)
S12	3	S4:S6(S)S11
S13	19	S7(S)S11
S14	16	S13 NOT S12
S15	12	S14 AND S10
S16	4	S14 NOT S15
S17	26	(S2 OR S9) (S)S3(S)S4:S7
S18	8	S17 NOT S13

12/3,AB,K/1 (Item 1 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00934984

Electrostatic filter

Elektrostatisher Filter

Filtre electrostatique

PATENT ASSIGNEE:

KOKEN LTD., (563320), No. 7, Yonban-cho, Chiyoda-ku Tokyo, (JP),
(Proprietor designated states: all)

INVENTOR:

Kimura, Kazushi, c/o Koken Ltd., 7, Yonban-cho, Chiyoda-ku, Tokyo, (JP)

LEGAL REPRESENTATIVE:

Van Malderen, Michel et al (1114), Office van Malderen Place Reine
Fabiola 6/1, 1083 Bruxelles, (BE)

PATENT (CC, No, Kind, Date): EP 850692 A1 980701 (Basic)
EP 850692 B1 010711

APPLICATION (CC, No, Date): EP 97870121 970814;

PRIORITY (CC, No, Date): JP 96357255 961226

DESIGNATED STATES: CH; DE; FR; GB; IT; LI; SE

INTERNATIONAL PATENT CLASS: B03C-003/28

ABSTRACT EP 850692 A1

An **electrostatic filter** comprises a **fibrous** component including a mixture of wool and synthetic fibers and a resinous component including a perfluoroalkyl acrylate copolymer resin and a p-tert-butylphenol formaldehyde resin, which **resinous component is adhering to the fibrous component**, both of the fibrous substrate component and the resinous component being in electrostatically charged conditions.

ABSTRACT WORD COUNT: 55

NOTE: Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	199827	276
CLAIMS B	(English)	200128	282
CLAIMS B	(German)	200128	254
CLAIMS B	(French)	200128	302
SPEC A	(English)	199827	4648
SPEC B	(English)	200128	4670

Total word count - document A 4925

Total word count - document B 5508

Total word count - documents A + B 10433

...SPECIFICATION now subjected to a mechanical treatment to be rendered highly charged. In this manner, the **electrostatic filter** of the invention is obtained.

The PFA copolymer resin is a random copolymer having a...

15/3,AB,K/1 (Item 1 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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01713523

Electret articles and filters with increased oily mist resistance

Elektretartikelen und Elektretfiltermaterial resistent gegen olhaltigen Nebel

Articles et filtres en electret resistent a un brouillard huileux

PATENT ASSIGNEE:

MINNESOTA MINING AND MANUFACTURING COMPANY, (300410), 3M Center, P.O. Box 33427, St. Paul, Minnesota 55133-3427, (US), (Applicant designated States: all)

INVENTOR:

Rousseau, Alan D., Post Office Box 33427, Saint Paul, Minnesota 55133-3427, (US)

Jones, Marvin E., Post Office Box 33427, Saint Paul, Minnesota 55133-3427, (US)

Mei, Betty Z., Post Office Box 33427, Saint Paul, Minnesota 55133-3427, (US)

LEGAL REPRESENTATIVE:

VOSSIUS & PARTNER (100314), Siebertstrasse 4, 81675 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1402934 A1 040331 (Basic)

APPLICATION (CC, No, Date): EP 2003026835 980126;

PRIORITY (CC, No, Date): US 941270 971001

DESIGNATED STATES: DE; ES; FR; GB; IT; NL

RELATED PARENT NUMBER(S) - PN (AN):

EP 1019173 (EP 98904680)

INTERNATIONAL PATENT CLASS: B01D-039/16 ; B01D-039/08

ABSTRACT EP 1402934 A1

Novel **electret articles** containing a polymer and a performance-enhancing additive can be identified by their thermally stimulated conductivity characteristics or their filtration properties. Electret articles such as **nonwoven filter webs** and respirators exhibit superior oily mist loading performance, low penetration and a small pressure drop.

ABSTRACT WORD COUNT: 46

NOTE: Figure number on first page: NONE

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200414	392
SPEC A	(English)	200414	11531
Total word count - document A			11923
Total word count - document B			0
Total word count - documents A + B			11923

...SPECIFICATION on the resulting product's electret properties.

One method that has been reported to improve **electret filter** performance is blending a performance-enhancing additive into a **polymer** that is used to form electret **fibers**. For example, Jones et al. in U.S. Patent Nos. 5,411,576 and 5,472,481 disclose **electret filters** that are made by extruding a blend of **polymer** and a melt-processable fluorochemical to form a microfibrinous web that is subsequently annealed and corona **treated**. Lifshutz et al. in WO 96/26783 (corresponding to U.S. Patent No. 5,645,627) report **electret filters** that are made by extruding a blend of **polymer** and a fatty acid amide or a fluorochemical oxazolidinone fluorochemical to form a microfibrinous web that is subsequently annealed and corona **treated**.

Other techniques have been reported which improve an electret article's charge properties. For example...

...S. Patent No. 4,588,537 report using corona treatment to inject charge into an **electret filter**. Angadjivand et al. in U.S. Patent No. 5,496,507 found that impinging water droplets onto a **nonwoven** microfiber web imparted a charge to the web, and Rousseau et al. in WO 97/07272 disclose **electret filters** that are made by extruding blends of a **polymer** and a fluorochemical or organic triazine compound to form a microfibrinous web that is subsequently...

15/3,AB,K/2 (Item 2 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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01250365

CHARGE STABILIZED ELECTRET FILTER MEDIA

LADUNGSSTABILISIERTES ELEKTRETFILTERMATERIAL

MATERIAU FILTRANT A ELECTRET STABILISE EN CHARGE

PATENT ASSIGNEE:

HOLLINGSWORTH & VOSE COMPANY, (310060), 112 Washington Street, East
Walpole, MA 02032, (US); (Proprietor designated states: all)

INVENTOR:

COX, Stephen, Todd, 1006 Forest Avenue, Radford, VA 24141, (US)

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Ballsbridge, Dublin 4, (IE)

PATENT (CC, No, Kind, Date): EP 1202788 A2 020508 (Basic)
EP 1202788 B1 030312
WO 2000078430 001228

APPLICATION (CC, No, Date): EP 2000951043 000615; WO 2000US40201 000615

PRIORITY (CC, No, Date): US 335002 990617

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;
LU; MC; NL; PT; SE

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS: **B01D-039/00**

NOTE: No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200311	823
CLAIMS B	(German)	200311	701
CLAIMS B	(French)	200311	942
SPEC B	(English)	200311	5092
Total word count - document A			0
Total word count - document B			7558
Total word count - documents A + B			7558

...SPECIFICATION a variety of known techniques. One technique for manufacturing electret filter media involves extruding a **polymer**, typically having a high melt flow index, through a die having a linear array of orifices. An air knife is used to attenuate the extruded **polymer fibers** by a ratio of about 300:1. The attenuated **fibers**, having diameters of about one to ten micrometers, are collected on a rotating drum or moving belt using a moderate vacuum. The **fiber** web is then **treated** to impart on the **fiber** web charge pairs or dipoles. The charge pairs or dipoles can be imparted to the **fiber**, for example, using AC and/or DC corona discharge.

One problem associated with electret filter...

...method of manufacturing an electret filter material. According to this aspect of the invention a **polymer** resin, having incorporated therein a charge stabilizing additive, e.g., a melt processable nonionic fatty...

...amide of the type noted above, is processed to yield a web of melt blown **polymer fiber** in which the additive is present at a concentration range of about 1.0 to about 20% by weight. Subsequently, the web is **treated** to form permanent dipoles in the melt blown **polymer** web. The permanent dipoles can be imparted to the web by a variety of techniques...

...and combinations thereof. In a preferred embodiment the manufacturing process can be modified by heat **treating** the **polymer** web, which has incorporated therein a melt processable fatty acid amide additive, after charging the...well known to impart a permanent dipole to the polymer web in order to form **electret filter** media. Charging can be effected through the use of AC and/or DC corona discharge...

...useful to use both AC and DC corona discharge units. In a preferred technique the **polymer** web is first subjected to AC corona discharge followed by one or more successive **treatments** by a DC corona discharge unit. Charging can also be accomplished using other techniques, including friction-based charging techniques. Typically the **fiber** web is subjected to a discharge of between about 1 to about 30 kV(energy...are also part of the present invention. In one embodiment, the methods include providing a **polymer** resin having a charge stabilizing fatty acid amide incorporated therein. A web of melt blown **polymer fibers** is produced from the **polymer** resin, in which the charge stabilizing fatty acid amide is present in a concentration at greater than 2% to about 20% by weight. The web is then **treated** to form substantially permanent charge pairs or dipoles in the melt blown **polymer** web.

In another embodiment, the methods include manufacturing an annealed electret filter media by providing a **polymer** resin having a charge stabilizing fatty acid amide incorporated therein. The web of melt blown **polymer fibers** is produced from the **polymer** resin, in which the concentration of charge stabilizing additive is between about 1% to about 20% by weight. The web is **treated** to form substantially permanent charge pairs or dipoles in the melt blown **polymer** web and the resulting melt blown **polymer** web is **treated** at an elevated temperature to form an annealed melt blown **polymer** web.

One useful technique for processing the electret web of the invention

is illustrated in...

15/3,AB,K/3 (Item 3 from file: 348)

DIALOG(R) File 348:EUROPEAN PATENTS

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00640797

FILTER SYSTEM FOR FILTERING FLUIDS

FILTERSYSTEM ZUM FILTRIEREN VON FLUIDEN

SYSTEME DE FILTRATION DESTINE A FILTRER DES FLUIDES

PATENT ASSIGNEE:

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33427, St. Paul, Minnesota 55133-3427, (US), (applicant designated
states: DE;ES;FR;GB;IT;SE)

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HORSTEN, Anton, J., J., Statenlaan 130, NL-2582 GW Den Haag, (NL)

LEGAL REPRESENTATIVE:

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, (DE)

PATENT (CC, No, Kind, Date): EP 620755 A1 941026 (Basic)

EP 620755 B1 980617

WO 9312858 930708

APPLICATION (CC, No, Date): EP 92924156 921030; WO 92US9311 921030

PRIORITY (CC, No, Date): DE 4143245 911231

DESIGNATED STATES: DE; ES; FR; GB; IT; SE

INTERNATIONAL PATENT CLASS: B01D-027/06 ; B01D-029/07 ; B01D-046/10

NOTE: No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	9825	858
CLAIMS B	(German)	9825	685
CLAIMS B	(French)	9825	989
SPEC B	(English)	9825	5329
Total word count - document A			0
Total word count - document B			7861
Total word count - documents A + B			7861

...SPECIFICATION reticular support structure is about 0.85 mm. The fibers consist of polypropylene or other **polymers**. The non-woven material of the electret filter layer 60 consist of split fibers 10...
...diameter. The basis weight of the non-woven material is about 85 g/m2). The **fiber** material comprises needle tacked **fibers** randomly arranged. The thus- **treated fiber** material layer has a thickness of 2.0 mm. The **fibers** comprise polypropylene with electret characteristics provided by the known methods in the art. Connection between the **electret filter** layer 60 and the reticular support structure 58 is performed by gluing by an adhesive compatible with polypropylene. As materials for the **electret filter** layer, there can be used the products distributed under the designation 3M Filtrete(TM) or 3M SBMF by the Minnesota Mining and Manufacturing Company. Alternative to the above-mentioned **non - woven** material would consist in a **non - woven** material obtained in a melt-blown process, or in circular **fibers** of a 1-5 micron diameter.

The cover layer 62 comprises a non-woven spun...

15/3,AB,K/4 (Item 1 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT
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00918105

CHARGED MICROFIBERS, MICROFIBRILLATED ARTICLES AND USE THEREOF
MICROFIBRES CHARGEES, ARTICLES MICROFIBRILLES ET LEUR UTILISATION

Patent Applicant/Assignee:

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Inventor(s):

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Legal Representative:

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200252076 A1 20020704 (WO 0252076)

Application: WO 2001US21060 20010629 (PCT/WO US0121060)

Priority Application: US 2000746355 20001221

Designated States: AE AG AL AM AT AT (utility model) AU AZ BA BB BG BR BY
BZ CA CH CN CO CR CU CZ CZ (utility model) DE DE (utility model) DK DK
(utility model) DM DZ EC EE EE (utility model) ES FI FI (utility model)
GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV
MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SK (utility
model) SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 16650

English Abstract

Charged, high-strength, high-modulus, melt-processed microfibers, films having a charged, microfibrillated surface, and methods of making the same are described. Charged microfibrillated articles of the invention can be prepared by imparting fluid energy, typically in the form of high-pressure water jets, to a highly oriented, highly crystalline, melt processed film to liberate microfibers or microfibrinous flakes therefrom. Microfibrillated articles of the invention find use as tape backings, in the preparation of woven or nonwoven articles, filters for particulate contaminants, such as face masks and water or air filters, fibrous mats, such as those used for removal of oil from water, wipes for dust or debris removal, and thermal and acoustical insulation.

...International Patent Class: **B01D-039/16**

Fulltext Availability: Detailed Description

Detailed Description

... of high rates of production, is suitable as an industrial process and uses readily available **polymers**. The microfibers and microfibrillated articles of this invention, having extremely small fiber diameter and both...forms (dental floss or nonwovens, for example). When imparted with a charge, by either corona **treatment** or microfibrillation with high-pressure water jets, the resulting **charged microfibers**, (or microfibrillated articles) are particularly useful in filtration

applications, and as wipes for the removal...

15/3,AB,K/5 (Item 2 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00835286

MELT BLOWN COMPOSITE HEPA VACUUM FILTER

FILTRE HEPA COMPOSITE SOUS-VIDE POUR FUSION-SOUFFLAGE

Patent Applicant/Assignee:

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02032, US, US (Residence), US (Nationality)

Inventor(s):

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HEALEY David T, 2845 Wild Turkey Run, Christianburg, VA 24073, US,

Legal Representative:

GEARY William C (agent), Nutter, McClennen & Fish LLP, One International
Place, Boston, MA 02210, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200168658 A2-A3 20010920 (WO 0168658)

Application: WO 2001US7800 20010312 (PCT/WO US0107800)

Priority Application: US 2000189652 20000315

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU

CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR

KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE

SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 8033

English Abstract

An electret filter media includes an additive or mixtures thereof that enhance the charge stability of the media. The filter media achieves acceptable alpha values for a range of filtration challenges without significant decay in alpha values over time. Preferred charge additives include fatty acid amides and mixtures thereof.

Main International Patent Class: B01D-039/16

Fulltext Availability: Detailed Description

Detailed Description

... allowing the filter media to attract and retain charged and uncharged particles to be filtered.

Electret filter materials are made by a variety of known techniques. One technique for manufacturing **electret filter** media involves extruding a **polymer**, typically having a high melt flow index, through a die having a linear array of orifices. An air knife is used to attenuate the extruded **polymer fibers** by a ratio of about 3 00: 1. The attenuated **fibers**, having diameters of about one to ten micrometers, are collected on a 1 0 rotating drum or moving belt using a moderate vacuum. The **fiber** web is then **treated** to impart on the **fiber** web charge pairs or dipoles. The charge pairs or dipoles can be imparted to the **fiber**, for example, using AC and/or DC corona discharge...

15/3,AB,K/6 (Item 3 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00827243

MELT BLOWN COMPOSITE HEPA FILTER MEDIA AND VACUUM BAG
MATERIAU FILTRANT HEPA COMPOSITE DE FUSION-SOUFFLAGE ET POCHE SOUS VIDE

Patent Applicant/Assignee:

HOLLINGSWORTH & VOSE COMPANY, 112 Washington Street, East Walpole, MA
02032, US, US (Residence), US (Nationality)

Inventor(s):

COX Stephen T, 1006 Forest Avenue, Radford, VA 24141, US,
HEALY David T, 2845 Wild Turkey Run, Christianburg, VA 24073, US,

Legal Representative:

GEARY William C III (et al) (agent), Nutter, McClennen & Fish, LLP, One
International Place, Boston, MA 02110-2699, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200160496 A1 20010823 (WO 0160496)

Application: WO 2001US4716 20010214 (PCT/WO US0104716)

Priority Application: US 2000182620 20000215

Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ
DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ
LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG
SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 6817

English Abstract

An electret filter media includes an additive or mixtures thereof that enhance the charge stability of the media. The filter media achieves acceptable alpha values for a range of filtration challenges without significant decay in alpha values over time. Preferred charge additives include fatty acid amides and mixtures thereof.

Main International Patent Class: **B01D-039/16**

Fulltext Availability: Detailed Description

Detailed Description

... allowing the filter media to attract and retain charged and uncharged particles to be filtered.

Electret filter materials are made by a variety of known techniques. One technique for manufacturing **electret filter** media involves extruding a **polymer**, typically having a high melt flow index, through a die having a linear array of orifices. An air knife is used to attenuate the extruded **polymer fibers** by a ratio of about 300: 1. The attenuated **fibers**, having diameters of about one to ten micrometers, are collected on a rotating drum or moving belt using a moderate vacuum. The **fiber** web is then **treated** to impart on the **fiber** web charge pairs or dipoles. The charge pairs or dipoles can be imparted to the **fiber**, for example, using AC and/or DC corona discharge.

There is thus a need for...microwave heaters, oil or water heated rollers, and convention ovens. Preferably, the step of heat **treating**, e.g., annealing, is performed by convection, thereby affording uniform annealing of the melt blown **fiber** web which contains the melt processable fatty acid amide within the web. In general, the fatty acid amide appears to be more sensitive to the effects of post-charging heat **treatment** than are other classes of charge stabilizing additives. That

is, heat **treating** tends to cause the fatty acid amide to migrate to the **polymer** surface more readily than do other charge stabilizing additives...

15/3,AB,K/9 (Item 6 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00485180

OILY MIST RESISTANT ELECTRET ARTICLES AND FILTERS
ARTICLES ET FILTRES EN ELECTRET RESISTANT A UN BROUILLARD HUILEUX

Patent Applicant/Assignee:

MINNESOTA MINING AND MANUFACTURING COMPANY,

Inventor(s):

ROUSSEAU Alan D,

JONES Marvin E,

MEI Betty Z,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9916532 A1 19990408

Application: WO 98US1439 19980126 (PCT/WO US9801439)

Priority Application: US 97941270 19971001

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES
FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD
MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ
VN YU ZW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH
DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR
NE SN TD TG

Publication Language: English

Fulltext Word Count: 13336

English Abstract

Novel electret articles containing a polymer and a performance-enhancing additive can be identified by their thermally stimulated conductivity characteristics or their filtration properties. Electret articles such as nonwoven filter webs and respirators exhibits superior oily mist loading performance, low penetration and a small pressure drop. The electret articles are preferably produced by melt-blowing a blend of a polymer and a fluorochemical additive selected from the group consisting of formulae (I), (II) and (III).

Main International Patent Class: B01D-039/08

...International Patent Class: A62B-023/02

Fulltext Availability: Detailed Description

Detailed Description

... on the resulting product's electret properties.

One method that has been reported to improve **electret filter** performance is blending a performance-enhancing additive into a **polymer** that is used to form electret **fibers**. For example, Jones et al. in U.S. Patent Nos. 5,411,576 and 5,472,481 disclose **electret filters** that are made by extruding a blend of **polymer** and a melt-processable fluorochemical to form a microfibrinous web that is subsequently annealed and corona **treated**. Lifshutz et al. in WO 96/26783 (corresponding to - 1 U.S. Patent No. 5,645,627) report **electret filters** that are made by extruding a blend of **polymer** and a fatty acid amide or a fluorochemical oxazolidinone fluorochemical to form a microfibrinous web that is subsequently annealed and corona **treated**.

Other techniques have been reported which improve an electret article's charge properties. For example...

...S. Patent No. 4,588,537 report.

using corona treatment to inject charge into an **electret filter**. Angadjivand et al. in U.S. Patent No. 5,496,507 found that impinging water droplets onto a **nonwoven** microfiber web imparted a charge to the web, and Rousseau et al. in WO 97/07272 disclose **electret filters** that are made by extruding blends of a **polymer** and a fluorochemical or organic triazine compound to form a microfibrinous web that is...

15/3,AB,K/10 (Item 7 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
(c) 2004 WIPO/Univentio. All rts. reserv.
00344270

CHARGE STABILIZED ELECTRET FILTER MEDIA
MATERIAU FILTRANT A BASE D'ELECTRETS A STABILISATION DE CHARGE

Patent Applicant/Assignee:

HOLLINGSWORTH & VOSE COMPANY,

Inventor(s):

LIFSHUTZ Norman,
GAHAN Richard E,
STEVENS Graham C,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9626783 A1 19960906

Application: WO 96US1555 19960208 (PCT/WO US9601555)

Priority Application: US 95395661 19950228

Designated States: AU CA JP KR AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT
SE

Publication Language: English

Fulltext Word Count: 7579

English Abstract

An electret filter media includes an additive or mixtures thereof that enhance the charge stability of the media. The filter media achieves acceptable alpha values for a range of filtration challenges without significant decay in alpha values over time. Preferred charge additives include fatty acid amides, **oleophobic fluorochemical surfactants**, and mixtures thereof.

Main International Patent Class: B01D-039/08

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... a variety of known techniques. One technique for manufacturing electret filter media involves extruding a **polymer**, typically having a high melt flow index, through a die having a linear array of orifices. An air knife is used to attenuate the extruded **polymer fibers** by a ratio of about 300:1. The attenuated **fibers**, having diameters ... micrometers, are collected on a rotating drum or moving belt using a moderate vacuum. The **fiber** web is then **treated** to impart on the **fiber** web charge pairs or dipoles. The charge pairs or dipoles can be imparted to the **fiber**, for example, using AC and/or DC corona discharge. One problem associated with electret filter...method of manufacturing an electret filter material. According to this aspect of the invention a **polymer** resin, having incorporated therein a charge stabilizing additive of the type noted above, is processed to yield a web of melt blown **polymer fiber** in which the charge stabilizing additive is present at a concentration range of about 0.1 to 3.5% by weight. Subsequently, the web is **treated** to form permanent dipoles in the melt blown **polymer** web. The permanent dipoles can be imparted to the web by a variety of

techniques...

Claim

... 11. A method for manufacturing an electret filter media comprising the steps of: providing a **polymer** resin having incorporated therein a charge stabilizing additive selected from the group consisting of stearic...

...fatty acid amide with a nonionic, oleophobic fluorochemical surfactant producing a web of melt blown **polymer fibers** from the **polymer** resin, in which the charge stabilizing additive is present at about 0.1 to 3.5% by weight; and **treating** the web to form substantially permanent charge pairs or dipoles in the melt blown **polymer** web.

12. The method of claim 11 where in the...

15/3,AB,K/11 (Item 8 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00287083

FILTER MEDIA HAVING AN UNDULATED SURFACE

MILIEU FILTRANT A SURFACE ONDULEE

Patent Applicant/Assignee:

MINNESOTA MINING AND MANUFACTURING COMPANY,

Inventor(s):

BERRIGAN Michael R,

OLSON David A,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9505232 A1 19950223

Application: WO 94US9277 19940817 (PCT/WO US9409277)

Priority Application: US 93107918 19930817

Designated States: BR CA JP KR AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Fulltext Word Count: 6219

English Abstract

Filter media is provided. The filter media comprises a web (30) of melt blown microfibers having one surface substantially flat (33) and the other surface having periodic wrinkle-like undulations (32). A method of making the filter media is also provided. The filter media is useful in **electret filters** when charged.

Main International Patent Class: B01D-039/08

International Patent Class: B01D-39:16 ...

Fulltext Availability: Detailed Description

Detailed Description

... corona after it is collected. Melt-blown 5 polypropylene microfibers are especially useful, while other **polymers** may also be used such as polycarbonates and polyhalocarbons that may be melt-blown and have appropriate volume-resistivities under expected environmental conditions.

Common **polymers** such as polyesters, polycarbonates, etc. can be **0 treated** to produce highly charged electrets. The electret structures ...dielectric material can also be charged and then split into fibrils which can form an **electret filter** web.

In the case of many aerosols, e.g., dust or fumes, unacceptable pressure drop...

15/3,AB,K/12 (Item 9 from file: 349)

DIALOG(R) File 349:PCT FULLTEXT

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00238597

FILTER ELEMENT FOR FILTERING FLUIDS

ELEMENT DE FILTRATION DESTINE A FILTRER DES FLUIDES

Patent Applicant/Assignee:

MINNESOTA MINING AND MANUFACTURING COMPANY,
VAN DE GRAAF Peter,
HORSTEN Anton J J,

Inventor(s):

VAN DE GRAAF Peter,
HORSTEN Anton J J,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9312862 A1 19930708

Application: WO 92US9309 19921030 (PCT/WO US9209309)

Priority Application: DE 4143237 19911231

Designated States: AT AU BB BG BR CA CH CS DE DK ES FI GB HU JP KP KR LK LU
MG MN MW NL NO PL RO RU SD SE UA US AT BE CH DE DK ES FR GB GR IE IT LU
MC NL SE BF BJ CF CG CI CM GA GN ML MR SN TD TG

Publication Language: English

Fulltext Word Count: 2530

English Abstract

The filter element (10) is provided with a reticular support structure (12) which is permeable to the fluid to be filtered and is connected to a filtering **electret filter** layer (14). The reticular support structure (12) is arranged before the **electret filter** layer (14) when viewed in the flow direction (18). Further, the arrangement of the filter element (10) is such that, when fluid is passing through the filter element (10), the **electret filter** layer (14) can freely expand in flow direction (18) so that the volume of the layer (14) available for filtering is enlarged. For holding the material of the **electret filter** layer (14) together, a cover layer (16) can be provided behind the **electret filter** layer (14) as seen in the flow direction (18).

Main International Patent Class: **B01D-039/14**

International Patent Class: **B01D-46:52 ...**

Fulltext Availability: Detailed Description
Detailed Description

... reticular support structure is about 0.85 mm. The fibers consist of polypropylene or other **polymers**. The non-woven material of the **electret filter** layer 14 consist of split fibers 10...

...**nonwoven** material is about 85 g/m², The **fiber** material comprises needle tacked **fibers** randomly arranged. The thus **treated fiber** material layer has a thickness of 2.0 mm. The **fibers** comprise polypropylene with electret characteristics provided by the known methods in the art. Connection between the **electret filter** layer 14 and the reticular support structure 12 is 5 performed by gluing with an adhesive compatible with polypropylene. As materials for the **electret filter** layer, there can be used the products distributed under the designation 3M Filtrete®K or...

16/6/1 (Item 1 from file: 348)

01284226

POLYMER COMPOSITION CONTAINING A FLUOROCHEMICAL OLIGOMER

16/3,AB,K/3 (Item 3 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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00319751

Electret filter made of fibers containing polypropylene and poly(4-methyl-1-pentene).

Elektretfilter aus Polypropylen und Poly(4-methyl-1-penten) enthaltende Fasern.

Filtre en electrete contenant du polypropylene et du poly(4-methyl-1-pentene).

PATENT ASSIGNEE:

MINNESOTA MINING AND MANUFACTURING COMPANY, (300410), 3M Center, P.O. Box 33427, St. Paul, Minnesota 55133-3427, (US), (applicant designated states: DE;ES;FR;GB;IT;NL;SE)

INVENTOR:

Reed, John F. c/o Minnesota Mining and, Manufacturing Company 2501 Hudson Road, P.O. Box 33427 St. Paul Minnesota 55133, (US)

Jones, Marvin E. c/o Minnesota Mining and, Manufacturing Company 2501 Hudson Road, P.O. Box 33427 St. Paul Minnesota 55133, (US)

LEGAL REPRESENTATIVE:

Baillie, Iain Cameron et al (27951), c/o Ladas & Parry, Altheimer Eck 2, W-8000 Munchen 2, (DE)

PATENT (CC, No, Kind, Date): EP 325854 A1 890802 (Basic)
EP 325854 B1 930421

APPLICATION (CC, No, Date): EP 88311854 881214;

PRIORITY (CC, No, Date): US 147989 880125

DESIGNATED STATES: DE; ES; FR; GB; IT; NL; SE

INTERNATIONAL PATENT CLASS: B03C-003/28; H01G-007/02;

ABSTRACT EP 325854 A1

A fibrous **electret filter** better sustains electret filtration enhancement upon exposure to aerosol oils when made of **fibers** containing polyolefin (preferably polypropylene) and at least one percent by weight of poly(4-methyl-1-pentene). Even better stability is attained when the poly(4-methyl-1-pentene) content of the **electret filter** is ten percent by weight of total polyolefin. When used as an air filter, such as in a respirator, the **electret filter** has surprisingly better filtration performance than does a comparable electret filter made of 100% polypropylene fibers. The **electret filter** can be made either of melt-blown microfibers or of fibers of fibrillated film.

ABSTRACT WORD COUNT: 102

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	EPBBF1	189
CLAIMS B	(German)	EPBBF1	174
CLAIMS B	(French)	EPBBF1	212
SPEC B	(English)	EPBBF1	4098
Total word count - document A			0
Total word count - document B			4673
Total word count - documents A + B			4673

...SPECIFICATION as "TPX" grade MX-007 by Mitsui Petrochemical Industries, Ltd., meets this requirement. Furthermore, neither **polymer** nor the **electret filter** should be subjected to any **unnecessary treatment** which might increase its electrical conductivity, e.g., exposure to gamma rays, ultraviolet irradiation, pyrolysis, oxidation, etc.

When producing an electret filter of the invention from **melt - blown** microfibers, it is believed that there is no advantage to melt-blending the PMP into the polypropylene before introducing them into the...

18/6/6 (Item 4 from file: 349)
00756021
ALKYLATED FLUORO-CHEMICAL OLIGOMERS AND USE THEREOF

18/3,AB,K/7 (Item 5 from file: 349)
DIALOG(R) File 349:PCT FULLTEXT
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00485593
ELECTRET FIBERS AND FILTER WEBS HAVING A LOW LEVEL OF EXTRACTABLE
HYDROCARBONS
FIBRES ELECTRET ET TISSUS POUR FILTRES A FAIBLE TENEUR EN HYDROCARBURES
EXTRACTIBLES

Patent Applicant/Assignee:
MINNESOTA MINING AND MANUFACTURING COMPANY,

Inventor(s):
ROUSSEAU Alan D,
MILLER Joel W,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9916945 A1 19990408
Application: WO 98US1685 19980130 (PCT/WO US9801685)
Priority Application: US 97941945 19971001

Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES
FI GB GE GH GM GW HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD
MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ
VN YU ZW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH
DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR
NE SN TD TG

Publication Language: English
Fulltext Word Count: 5525
English Abstract

Electret fibers that contain a polymeric material and a fluorochemical additive. The electret fibers have a low level of extractable hydrocarbon material. **Electret filters** that have low extractable hydrocarbon levels exhibit improved filtration performance.

Fulltext Availability: Detailed Description
Detailed Description

... 5,472,48 1, disclose electret filters that are made by extruding a blend of **polymer** with a melt-processable fluorochemical in a n-@crofibrous web. The resulting web is annealed and corona **treated**. Lifshutz et al. in U.S. Patent No. 5,645,627 (WO 96/26783) makes electret filters by extruding a blend of **polymer** with a fatty acid amide or a fluorochemical oxazolidinone or a mixture of these, in a n-@crofibrous web, followed by annealing and corona **treating** the resulting web. Angadjivand et al. in U.S. Patent No. 5,496,507 indicate...

(FILE 'HOME' ENTERED AT 09:50:41 ON 04 JUN 2004)
FILE 'REGISTRY' ENTERED AT 09:50:50 ON 04 JUN 2004

E ALKYLENE/CN
E ACRYLATE/CN
L1 1 S E3
E METHACRYLATE/CN
L2 1 S E3
E HEXAFLUOROPROPYLENE/CN
L3 1 S E3
E FLUOROPOLYMER/CN
E POLYTETRAFLUOROETHYLENE/CN
L4 1 S E3
E FLUORINATED ETHYLENEPROPYLENE/CN

FILE 'HCAPLUS' ENTERED AT 09:52:17 ON 04 JUN 2004

L5 43489 S L1 OR L2 OR L3 OR L4
L6 331264 S ALKYLENE OR ACRYLATE OR METHACRYLATE OR (OLEOPHOBIC OR HYDROP
L7 62799 S FLUOROPOLYMER# OR FLUORINATED ETHYLENEPROPYLENE OR FLUORINATE
L8 1471619 S MONOMER# OR POLYMER##
L9 962323 S COAT?
L10 680266 S FIBER# OR FIBRE# OR FIBROUS OR NONWOVEN OR NON WOVEN OR MICRO
L11 981 S (ELECTRET OR CHARGED OR STATIC ELECTRIC##(W)CHARGE# OR POLARI
L12 12 S L9 AND L10 AND L11
L13 3 S L12 AND (L5 OR L6 OR L7)
L14 7 S L12 AND L8
L15 7 S L13 OR L14
L16 12 S L9 AND L11 AND (L5 OR L6 OR L7 OR L8)
L17 5 S L16 NOT L15
L18 5 S L12 NOT (L15 OR L16)

L15 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:833742 HCAPLUS

DN 135:375887

ED Entered STN: 16 Nov 2001

TI ***Charged*** ***filter*** media containing charge control agents

IN Chapman, Rick L.

PA USA

SO U.S. Pat. Appl. Publ., 11 pp.

CODEN: USXXCO

DT Patent

LA English

IC ICM B01D046-00

NCL 096069000

CC 59-2 (Air Pollution and Industrial Hygiene)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001039879	A1	20011115	US 2000-738052	20001214
PRAI	US 1999-172296P	P	19991216		

AB An air filtration filter is formed of material such as a resin bound
fiber forming a woven or ***non*** - ***woven*** fabric,
thermoplastic netting, tackifying resin soln. and/or antimicrobial agents
in which said material is compounded or ***coated*** to contain 0.01
to 20 by wt. of a pos. and/or neg. charge control agent and then charging
the filter to apply an electrostatic charge to the filter.

ST air filter charge control agent

IT Amines, uses

RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)
 (arom., charge control agent; ***charged*** ***filter*** media
 contg. charge control agents for air purifn.)

IT Sulfonic acids, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (barium salts; ***charged*** ***filter*** media contg. charge
 control agents for air purifn.)

IT Acrylic ***polymers*** , uses
 Phenolic resins, uses
 Polyesters, uses
 Polyurethanes, uses
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (binder component; ***charged*** ***filter*** media contg.
 charge control agents for air purifn.)

IT Sulfonic acids, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (calcium salts, charge control agent; ***charged*** ***filter***
 media contg. charge control agents for air purifn.)

IT Metacyclophanes
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (calixarenes, charge control agent; ***charged*** ***filter***
 media contg. charge control agents for air purifn.)

IT Azo dyes
 Dyes
 Surfactants
 (charge control agent; ***charged*** ***filter*** media contg.
 charge control agents for air purifn.)

IT Amides, uses
 Amines, uses
 Azines
 Carbon black, uses
 Fluoropolymers , uses
 Mica-group minerals, uses
 Perfluorocarbons
 Polyethers, uses
 Polysaccharides, uses
 Quaternary ammonium compounds, uses
 Sulfides, uses
 Sulfonamides
 Urethanes
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (charge control agent; ***charged*** ***filter*** media contg.
 charge control agents for air purifn.)

IT Air filters
 Biocides
 (***charged*** ***filter*** media contg. charge control agents)

IT Polyesters, uses
 RL: DEV (Device component use); USES (Uses)
 (***charged*** ***filter*** media contg. charge control agents
 for air purifn.)

IT Carboxylic acids, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)
 (dicarboxylic, charge control agent; ***charged*** ***filter***
 media contg. charge control agents for air purifn.)

IT Amides, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (fatty, charge control agent; ***charged*** ***filter*** media
 contg. charge control agents for air purifn.)

IT Air purification
 (filtration; ***charged*** ***filter*** media contg. charge
 control agents)

IT Fatty acids, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (metal salts, charge control agent; ***charged*** ***filter***
 media contg. charge control agents for air purifn.)

IT Polyamides, uses
 RL: DEV (Device component use); USES (Uses)
 (netting component; ***charged*** ***filter*** media contg.
 charge control agents for air purifn.)

IT ***Polymers***, uses
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (polysulfonates, binder component; ***charged*** ***filter***
 media contg. charge control agents for air purifn.)

IT Amines, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (salts, charge control agent; ***charged*** ***filter*** media
 contg. charge control agents for air purifn.)

IT Plastics, uses
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (thermoplastics; ***charged*** ***filter*** media contg. charge
 control agents)

IT 9002-86-2 9002-89-5 9003-01-4 9003-55-8 24937-78-8 25037-78-9
 RL: DEV (Device component use); TEM (Technical or engineered material
 use); USES (Uses)
 (binder component; ***charged*** ***filter*** media contg.
 charge control agents for air purifn.)

IT 69-72-7D, metal complexes 81-88-9 86-74-8, 9H-Carbazole 92-83-1,
 9H-Xanthene 108-95-2D, Phenol, derivs. 110-85-0, Piperazine, uses
 445-29-4 455-24-3 519-73-3 532-32-1 577-11-7 603-34-9
 1332-29-2D, Tin oxide, alkyl derivs. 1332-37-2, Iron oxide, uses
 1344-28-1, Aluminum oxide (Al₂O₃), uses 3244-41-5 7429-90-5D,
 Aluminum, fatty acid salts 7439-95-4D, Magnesium, fatty acid salts
 7440-47-3D, Chromium, complexes with azo compds. 7440-66-6D, Zinc,
 complexes 7631-86-9, Silica, uses 7803-62-5, Silane, uses 8005-03-6,
 C.I. Acid Black 2 ***9002-84-0*** 9016-00-6,
 Poly[oxy(dimethylsilylene)] 12619-70-4, Cyclodextrin 12712-38-8
 16749-13-6D, Phosphonium, quaternary trihalozincate salts 26264-05-1
 28963-72-6D, compds. 43135-91-7, 2H-Benzimidazol-2-one 51667-26-6,
 Oxazolidinone 54783-99-2D, ammonium salts, alkyl derivs. 55818-45-6
 56289-02-2D, derivs 87564-38-3, Di-tert-butylsalicylic acid 94248-06-3
 106503-53-1 374091-86-8
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)

(charge control agent; ***charged*** ***filter*** media contg.
charge control agents for air purifn.)
IT 374112-74-0, Lecigran MT
RL: MOA (Modifier or additive use); USES (Uses)
(charge control agent; ***charged*** ***filter*** media contg.
charge control agents for air purifn.)
IT 25038-59-9, uses
RL: DEV (Device component use); USES (Uses)
(***charged*** ***filter*** media contg. charge control agents
for air purifn.)
IT 7440-21-3D, Silicon, org. complexes, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES
(Uses)
(***charged*** ***filter*** media contg. charge control agents
for air purifn.)
IT 9002-88-4 9003-07-0 9003-53-6
RL: DEV (Device component use); USES (Uses)
(netting component; ***charged*** ***filter*** media contg.
charge control agents for air purifn.)

L15 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:301787 HCAPLUS
DN 120:301787
ED Entered STN: 11 Jun 1994

TI manufacture of net-shaped *electret*** ***filters*****

IN Hamada, Akira
PA Kureha Chemical Ind Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B01D039-14
ICS B01D039-00
CC 47-2 (Apparatus and Plant Equipment)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06047218	A2	19940222	JP 1992-223327	19920730
	JP 2521615	B2	19960807		
PRAI	JP 1992-223327		19920730		

AB Nets made of elec.-insulating ***polymer*** ***fibers*** are
coated with silicone resins, ***fluoropolymers***, or urethane
resins, and electrostatically charged to give the title products with low
flow resistance for dust removal.
ST filter electret net manuf dust removal
IT Siloxanes and Silicones, uses
Urethane ***polymers***, uses
RL: USES (Uses)
(***polymer*** - ***fiber*** nets ***coated*** with,
electret, for dust removal)
IT Filters and Filtering materials
(electret, net-shaped, manuf. of, for dust removal)
IT 9002-86-2, Polyvinyl chloride 9003-07-0, Polypropylene 25038-54-4,
Nylon-6, uses 25038-59-9, Polyethylene terephthalate, uses
RL: USES (Uses)
(***fibers***, nets, electret, ***coated*** with resins, for
dust removal)

IT ***9002-84-0*** , Polytetrafluoroethylene
RL: USES (Uses)
(***polymer*** - ***fiber*** nets ***coated*** with,
electret, for dust removal)

L15 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:105412 HCAPLUS
DN 118:105412
ED Entered STN: 19 Mar 1993
TI **Manufacture of ***electret*** ***filters*****
IN Kubota, Shuji; Tani, Yatsuhiko; Takase, Satoshi
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B01D039-00
ICS A62B018-02; B01D039-14; B03C003-28; D04H013-02
CC 47-2 (Apparatus and Plant Equipment)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04326910	A2	19921116	JP 1991-125212	19910425
PRAI	JP 1991-125212		19910425		

AB Films made of nonpolar ***polymers*** (e.g., polypropylene) are
coated with metals (e.g., Al) by vapor deposition,
electret-treated, fibrilized, and used to make ***nonwoven*** textiles
for dust removal. The decrease in filtration efficiency due to high load
is minimized.

ST filtering material electret ***nonwoven*** manuf

IT Filters and Filtering materials
(electret, ***nonwoven*** textiles, for dust removal)

IT 9003-07-0, Polypropylene
RL: USES (Uses)
(films, electret ***nonwoven*** textiles manuf. from, for dust
removal)

IT 7429-90-5, Aluminum, uses
RL: USES (Uses)
(polypropylene films ***coated*** with, electret ***nonwoven***
textiles manuf. from, for dust removal)

L15 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:19607 HCAPLUS
DN 106:19607
ED Entered STN: 24 Jan 1987
TI **Composite materials from porous materials and electrically conducting
polymers**
IN Moehwald, Helmut
PA BASF A.-G., Fed. Rep. Ger.
SO Ger. Offen., 5 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM B32B027-08
ICS C25B011-04; H01M004-60
CC 38-2 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3510036	A1	19860925	DE 1985-3510036	19850320
	JP 61218643	A2	19860929	JP 1986-51599	19860311
	US 4636430	A	19870113	US 1986-838783	19860312
	EP 195381	A2	19860924	EP 1986-103457	19860314
	EP 195381	A3	19870415		
	EP 195381	B1	19900606		
	R: BE, DE, FR, GB, NL				
PRAI	DE 1985-3510036		19850320		
AB	<p>The surfaces of the pores of a porous material, such as a polyurethane foam with open cells, are first ***coated*** with an elec. conducting ***polymer*** by treatment of ***monomers*** with an oxidizing agent and then ***coated*** with an elec. conducting ***polymer*** by anodic oxidn. of the ***monomers***. Suitable ***monomers*** include pyrrole, thiophene, aniline, etc. The composite products are useful as electrodes, as ***electrostatic*** ***filters***, as shoe soles having antistatic properties, etc. Thus, a polyurethane foam with 90% open cells was treated with a soln. comprising PhSO₃H 7.14, pyrrole 5, and MeOH 100 g, treated with a soln. of 5 g Na₂S₂O₈ in 100 g 1:1 MeOH-water, and washed with water and MeOH to give an elec. conducting ***polymer*** on surfaces of the foam. The ***polymer*** -contg. foam was then used as an anode in an electrolyte which contained 0.5 mol LiBF₄ in 1 L propylene carbonate as well as 2 vol.% pyrrole, giving a foam which contained 1000% polypyrrole (based on wt. of the composite) on the surfaces of the cells.</p>				
ST	<p>elec conductor porous ***polymer***; foam ***polymer*** elec conductor; polyurethane foam elec conductor; pyrrole ***polymer*** elec conductor; thiophene ***polymer*** elec conductor; aniline ***polymer*** elec conductor; electrode ***polymer*** porous; polymn oxidn elec conductor; ***coating*** ***polymer*** elec conductor; antistatic ***polymer*** ***coating*** prepn</p>				
IT	<p>Urethane ***polymers***, uses and miscellaneous RL: TEM (Technical or engineered material use); USES (Uses) (cellular, contg. elec. conducting ***polymer*** ***coating*** in pores)</p>				
IT	<p>Polypropene ***fibers***, uses and miscellaneous RL: USES (Uses) (fleeces, contg. elec. conducting ***polymer*** ***coating*** on ***fibers***)</p>				
IT	<p>Electric conductors (***polymers***, oxidative prepn. of, in porous materials)</p>				
IT	<p>Polymerization (oxidative, in prepn. of elec. conducting ***polymer*** in porous materials)</p>				
IT	<p>25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole RL: USES (Uses) (***coating*** by, of pores in porous materials, by oxidative polymn.)</p>				
IT	<p>7791-03-9, Lithium perchlorate 14283-07-9, Lithium fluoborate RL: USES (Uses) (in oxidative polymn. of pyrrole on porous materials)</p>				
L15	ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN				
AN	1970:510615 HCAPLUS				
DN	73:110615				

ED Entered STN: 12 May 1984
 TI Composition for ***coating*** filamentary of ***fibrous***
 filtering media and ***electrostatic*** ***filter*** elements
 PA Harrington, F. Edward, and Associates Ltd.
 SO Brit., 4 pp.
 CODEN: BRXXAA
 DT Patent
 LA English
 IC C08F
 CC 37 (Plastics Fabrication and Uses)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 1206562		19700923		
PRAI	US		19680308		
AB	An efficient and nonflammable ***coating*** for polyester filters was prepd. comprising 1.5-2% polybutene (Oronite), chlorinated paraffins, e.g. Paroil 1700 contg. 69-71% Cl and having a pour point of 25.degree., and Paroil 170T contg. 70-2% Cl and having a pour point of 10.degree., and chloroethene. The ***coating*** compn. (mixed with MeCCl3) was applied on the filter medium by spraying. An inert dye may be included in the ***coating*** mixt. to control the depth of penetration.				
ST	nonflammable ***coatings*** polyester filters; ***coatings*** nonflammable polyester filters; polyester filters nonflammable ***coatings*** ; polybutene ***coatings*** ; chlorinated paraffins ***coatings*** ; air filters tacky ***coatings*** ; tacky ***coatings*** air filters				
IT	***Coating*** materials (butene ***polymers*** and chlorinated paraffins, on polyester ***fiber*** filters)				
IT	Paraffins, uses and miscellaneous RL: USES (Uses) (chloro, ***coatings*** , contg. butene ***polymers*** , on polyester ***fiber*** filters)				
IT	***Fiber*** , polyester, uses and miscellaneous RL: USES (Uses) (filtering materials, ***coatings*** for)				
IT	Air, conditioning of (filters for, butene ***polymer*** - ***coated*** polyester ***fibers***)				
IT	Filtering materials (polyester ***fibers*** , ***coatings*** for)				
IT	9003-29-6, Butene, ***polymers*** RL: USES (Uses) (***coatings*** , contg. chlorinated paraffins, on polyester ***fiber*** filters)				
IT	71-55-6 RL: USES (Uses) (fire-resistant ***coatings*** contg., on polyester ***fiber*** filters)				
L15	ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN				
AN	1967:95903 HCAPLUS				
DN	66:95903				
ED	Entered STN: 12 May 1984				
TI	Affixing powdered materials to surfaces of foamed ***polymers***				
IN	Welsh, Robert Eugene; McConnell, Albert L.				

PA Scott Paper Co.
SO Fr., 4 pp.
CODEN: FRXXAK
DT Patent
LA French
IC C08G
CC 37 (Plastics Fabrication and Uses)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 1443254		19660624		
	DE 1569416			DE	
	US 3353994		19670000	US	
PRAI	US		19640507		

AB The powders are spread on surfaces and into interstices of the foams, which are then subjected to a flame from a gas explosion to bond the powders to the ***polymer***. Thus, a block of polyurethane-polyester-adipate foam, which had about 50 pores/dm. and an elec. resistance of 1012-1014 ohms/cc., was treated by high-temp. flame-spraying and immersed in powd. graphite. The excess powder was shaken off and the block was put into a polyethylene bag along with a gaseous mixt. of 16.7% (vol.) propane with 83.3% O. The gas was then detonated. The block gained 76% in wt. and each ***fiber*** was ***coated*** uniformly with graphite which could not be washed away. The block had an elec. resistance of about 2 .times. 107 ohm./cc. Polyether-polyurethane foam ***coated*** with Ni was similarly prepd. The ***coated*** foams are useful as catalytic materials, absorbents, ***electrostatic*** ***filters***, and shields for absorbing high-frequency electromagnetic radiation, depending upon the kind of powder used.

IT Urethane ***polymers***, uses and miscellaneous
RL: TEM (Technical or engineered material use); USES (Uses)
(cellular, ***coating*** with powd. graphite by flame from gas explosion)

IT Plastics, cellular
RL: USES (Uses)
(***coating*** with powders, by flame from gas explosion)

IT Explosions
(flame from gas, affixing powders to foamed ***polymers*** by)

IT ***Coating*** process
(of foamed ***polymers*** by powders by flame from gas explosion)

IT 7440-02-0, uses and miscellaneous 7782-42-5, uses and miscellaneous
RL: USES (Uses)
(powd., ***coating*** with, on urethane ***polymer*** foam, by flame from gas explosion)

L17 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1989:234087 HCAPLUS

DN 110:234087

TI Wet sulfuric acid ***electrostatic*** ***filters*** with parts
made from nonmetallic parts

L18 ANSWER 1 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1993:44839 HCAPLUS

DN 118:44839

ED Entered STN: 03 Feb 1993

TI ***Electret*** ***filters***

IN Kubota, Shuji; Tani, Yatsuhiko; Takase, Satoshi

PA Toyobo Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 3 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B01D039-14
 CC 59-6 (Air Pollution and Industrial Hygiene)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04305214	A2	19921028	JP 1991-93174	19910330
	JP 3074764	B2	20000807		
PRAI	JP 1991-93174		19910330		
AB	A metal deposition layer is formed on a film, electretized, sepd. into filaments, and formed into a ***nonwoven*** filter. The filter is useful for air purifn. and air conditioning.				
ST	electret ***nonwoven*** filter air purifn; conditioning air filter electret ***nonwoven***				
IT	Air conditioning (filters for, electret, metal- ***coated*** film-based nonwovens as)				
IT	Tobacco smoke and smoking (indoor air pollution by, electret ***nonwoven*** filters for)				
IT	Filters and Filtering materials (electret, ***nonwoven***, from metal- ***coated*** films; for air conditioning)				
IT	Electrets (film, metal- ***coated***, for ***nonwoven*** air filters)				
IT	9003-07-0, Polypropylene RL: OCCU (Occurrence) (aluminum- ***coated***, electrets, ***nonwoven*** air filters from)				
IT	7429-90-5, Aluminum, miscellaneous RL: MSC (Miscellaneous) (polypropylene films ***coated*** with, electrets from, for ***nonwoven*** air filters)				

L18 ANSWER 2 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1991:434900 HCAPLUS

DN 115:34900

ED Entered STN: 27 Jul 1991

TI High-performance ***electret*** ***filtering*** materials

IN Tani, Yatsuhiko; Takase, Satoshi

PA Toyobo Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B01D039-14

ICS B01D039-00; B32B005-26; D06M010-00

CC 59-6 (Air Pollution and Industrial Hygiene)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03065206	A2	19910320	JP 1989-201061	19890801
	JP 2936591	B2	19990823		
PRAI	JP 1989-201061		19890801		
AB	The filtering materials are composed of 2 laminated electret ***fiber***				

sheets ***coated*** with fine particles on the laminated surfaces.
 They are used for air purifn.
 ST filtering material electret air purifn
 IT Filtering materials
 (electret, ***fiber*** sheets ***coated*** with particles, for
 air purifn.)
 IT Air conditioning
 (filtration, particles removal in, ***electret*** ***filtering***
 materials for)
 IT 111-20-6, Sebacic acid, uses and miscellaneous 514-10-3, Abietic acid
 RL: USES (Uses)
 (particles, ***electret*** ***filtering*** materials contg.,
 for air purifn.)

L18 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1985:562584 HCAPLUS

DN 103:162584

ED Entered STN: 16 Nov 1985

TI Manufacture of ***electret*** ***filtering*** material for dust
 collection

PA Kanai, Hiroyuki, Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B01D039-16

CC 48-2 (Unit Operations and Processes)

Section cross-reference(s): 72

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60102913	A2	19850607	JP 1983-212922	19831111
PRAI	JP 1983-212922		19831111		
AB	Filtering material for dust collection (diam. .gtorsim.1 .mu.) is an electret bulk- ***fiber*** mat manufd. by binding webbed ***fibers*** at each contact point, packing its void space with dielec. (equiv. to that of the ***fiber***) material, electretting the mat by corona discharge (by 1.0-10 kV d.c.), and removing the dielec. material. Thus, a webbed mat (200 g/m2) of polyester ***fibers*** (50% by 0.8 denier X 38 mm and 20% by 1.5 denier .times. 51 mm) was bound by polyester adhesive (50 wt.% to the mat), dried to be dielec. const. 2.1, impregnated with 200 g/m2-mat dielec. material (dielec. const. 2.12) of 100:10:10 (wt. ratio) silicone oil-water-CM-cellulose [9004-32-4], heated at 120.degree., charged by 10 kV d.c. with electrodes attached at the ends, and air-blown to remove the material to prep. an ***electret*** ***filter*** . ST ***electret*** ***filter*** dust collection; ***fiber*** web ***electret*** ***filter*** ; corona discharge ***electret*** ***filter*** manuf; dielec packing material filter manuf IT Siloxanes and Silicones, uses and miscellaneous RL: USES (Uses) (dielec. materials contg., for ***coating*** of webbed ***fibers*** , in manuf. of dust filters) IT ***Fibers*** RL: USES (Uses) (electret, webbed mat of, for dust collectors) IT Polyester ***fibers*** , uses and miscellaneous RL: USES (Uses)				

(filtering materials, electretting of, dust collection)

IT Electric corona
(treatment by, of webbed ***fiber*** mats, in manuf. of dust filters)

IT Electrets
(webbed ***fiber*** mats, manuf. of, for dust collection)

IT Electric insulators and Dielectrics
(***coatings*** , dielec. materials, on electretting webbed ***fiber*** mats, in manuf. of dust filter)

IT Filtering materials
(***fibers*** , electret, webbed mats, manuf. of, for dust collection)

IT 9004-32-4
RL: USES (Uses)
(dielec. materials contg., for ***coating*** of webbed ***fibers*** , in manuf. of dust filters)

L18 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1979:209386 HCAPLUS

DN 90:209386

ED Entered STN: 12 May 1984

TI **Electrically charged solid-skinned structure for an electret-type air filter**

PA Nitta Belting Co., Ltd., Japan

SO Neth. Appl., 7 pp.

CODEN: NAXXAN

DT Patent

LA Dutch

IC B01D046-00

CC 59-2 (Air Pollution and Industrial Hygiene)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	NL 7707712	A	19781002	NL 1977-7712	19770711
	JP 53120200	A2	19781020	JP 1977-34887	19770328
	DE 2732491	A1	19781012	DE 1977-2732491	19770719
PRAI	JP 1977-34887		19770328		
AB	The suggested air filter comprises a gauzy synthetic material such as polypropene ***fibers*** ***coated*** with Al, Fe, or Ag or placed between Al plates, which are elec. charged to create an elec. field.				
ST	filter air metal ***coated*** ***fiber*** ; polypropene ***fiber*** metal ***coated*** filter; electrofilter air metal ***coated*** ***fiber*** ; ***electret*** ***filter*** metal ***coated*** ***fiber***				
IT	Air conditioning (electrofilters for)				
IT	Electrets (from metal- ***coated*** polypropene ***fibers*** , for air filtration)				
IT	Polypropene ***fibers*** , uses and miscellaneous RL: USES (Uses) (metal- ***coated*** , in electrofilter)				
IT	Filters and Filtration apparatus (electro-, metal- ***coated*** polypropene ***fibers*** as)				
IT	7429-90-5, uses and miscellaneous 7439-89-6, uses and miscellaneous 7440-22-4, uses and miscellaneous RL: USES (Uses)				

(polypropene ***fibers*** ***coated*** with, as electrofilters)